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OCT 15 1943

ANNUAL REPORT

OF THE

BOARD OF HEALTH,

TO THE

GENERAL ASSEMBLY OF LOUISIANA,

DECEMBER 31st, 1871.

SESSION OF 1872.

NEW ORLEANS:

1872.

BOARD OF HEALTH.

HON. JOHN S. WALTON.

* HON. E. W. PIERCE.

A. W. SMYTH, M. D.

H. D. BALDWIN, M. D.

M. P. AVILA, M. D.

W. H. HIRE, M. D.

B. F. MAAS, M. D.

C. B. WHITE, M. D., PRESIDENT.

S. C. RUSSELL, M. D., SECRETARY.

ATTORNEY FOR THE BOARD:

CHAS. S. RICE, ESQ.

CLERK:

ISAAC STATHEM.

* Died September 13th, 1871.

133902

SANITARY INSPECTORS.

1st Disirict... .....JULIUS S. CLARK, M. D.,

2d District.....F. B. ALBERS, M. D.

3d District.....A. W. PERRY, M. D.

4th District.....JULES A. MATHIEU, M. D.

5th District.....C. P. AMES, M. D.

6th District..... ....THOMAS D. WORRALL.

RESIDENT PHYSICIANS

OF

QUARANTINE STATIONS.

MISSISSIPPI STATION:

H. D. BALDWIN, M. D.

R. WESTERFIELD, M. D., ASSISTANT.

RIGOLETTES STATION:

SHAKSPEARE ALLEN, M. D.

ATCHAFALAYA STATION:

M. A. ROACH, M. D.

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REPORT.

STATE OF LOUISIANA,

OFFICE OF THE BOARD OF HEALTH,
159 CANAL STREET,

NEW ORLEANS, December 31st, 1871.

To his Excellency, H. C. WARMOTH, *Governor of the State of Louisiana:*

GOVERNOR:—The Board of Health respectfully submits its annual report:

On the 7th day of August, occurred the death of the Honorable E. W. Pierce, for sixteen months preceding his decease a member of the Board of Health.

The death of Mr. Pierce was felt as a severe loss by the members of this body, in their public capacity, and as individuals. Not professionally skilled in sanitary matters, as medical men are supposed to be, he, by investigation into sanitary science, made himself well informed on the class of subjects coming before him officially.

In his place in the Senate at its last session, he strongly supported measures to regulate the sale of dangerous illuminating oils, and in behalf of the system of public vaccination proposed by the Board of Health, made an address so complete in facts and figures, as to evince his thorough and complete mastery of the subject.

The attendance of Mr. Pierce upon the meetings of the Board of Health was unfailing and punctual. His duties as chairman of the Finance Committee were performed with regularity and care.

Mr. Pierce possessed an excellent intellect, cultivated by a liberal education and continued reading, great moral force of

character, combined with good knowledge of human nature and fine tact.

Absolute intellectual and moral honesty, with marked clear ness and dispassionateness of judgment, were his mental characteristics.

This clear, dispassionate, just quality of mind, was combined with a warmth and energy of nature, that in his duties in this body, as in other public positions, made him most capable active and interested.

These sterling qualities of mind and character were connected with a fine presence, a face of much manly beauty and with great urbanity of manner, a genuine courtesy of the heart, which knew no respect of persons.

So quietly, though completely, did he enact his various parts as citizen or public officer, that the power of the man was overlooked, by reason of his ease of action; its perfect symmetry concealed from many observers, the solid breadth and rare elevation of his character.

QUARANTINE.

Quarantine, as required by law, was maintained at Atchafalaya Station from May 1st to October 31st.

Quarantine at the Rigolets Station, being within the discretion of the Board, began June 15th and ceased September 30th. At the Mississippi Station quarantine against West Indian and South American ports took effect, agreeably to the proclamation by the Governor of the State, on June 1st and ceased on October 15th.

This special quarantine against yellow fever, was enforced with strictness, and with as much success as is probably possible.

Full particulars of the two instances in which yellow fever seemed to have eluded quarantine, are given farther on, in the pages occupied with the history of that disease, whilst prevalent last summer.

As much has appeared in the public prints as to the uselessness of quarantine regulations, the Board of Health expresses

its opinion *decidedly in favor of their continuance and thorough enforcement.*

The buildings at the Mississippi Quarantine Station suffered much by the cyclone of the third of October, which not only severely shattered the buildings, but brought the water from the gulf over the rear levee, prostrating the fences, submerging the premises, destroying all stores and washing away other material. The resident physician estimates the sum necessary to put the buildings in repair, and replace losses of stores and material, at twenty-five hundred dollars.

At the Rigolets Station quarantine fees were not exacted from vessels during the last summer.

SMALL POX.

Only two (2) deaths and eighteen (18) other cases of small pox and varioloid occurred in New Orleans during the past year; an exemption in marked contrast with the year 1870, during which five hundred and twenty-eight (528) deaths occurred, with a probable number of cases of small pox and varioloid of not less than five thousand; an experience, in marked contrast also to that of Eastern, Northern, and Western cities at the present time.

Reasons for this exemption from small pox, may perhaps be the absence of the so-called epidemic constitution of the air, the temperateness of the climate, and the mode of house building, which secures abundant ventilation of the habitations of even the most careless and poor persons, and consequent dilution of the poison, and to the exhaustion of material for its ravages, by the epidemic of the winter of 1871

Two most effective causes of this exemption are, however, the *prompt and complete isolation* of all cases of both varioloid and small pox, and the *vaccination* of *those exposed* by vicinity, and the *disinfection* or *destruction* of *fomites.* A third, and the most potential cause of the escape is the vaccination with pure, energetic virus, which has been so generally secured.

The interior of this and neighboring States, where vaccination is but little practised, furnishes every season, either as

transient or permanent population, many persons liable to small pox.

This number is each year increased by the birth of not less than four to five thousand infants. To the larger proportion of this population, foreign and internal commerce brings the infection of small pox.

England and Prussia, New York, Cincinnati and St. Louis have sent us cases of the disease.

The public schools have been carefully examined in the matter of protection from this disease, and gratuitous vaccination offered to all who desired it. This has been accepted by a very large number. The necessity for the ordinance of the Board of Health, requiring vaccination as a prerequisite to attendance of children upon the public schools is shown by the nine hundred (900) vaccinations of school children, made by Dr. Clarke in the 3d District of the city, in the months of January and February.

The total number of public school children vaccinated during the year by the several Sanitary Inspectors, is twenty-one hundred and ten (2110).

Pure vaccine virus, usually but one or two removes from the cow, has been constantly kept, and furnished gratuitously to all physicians applying for it. Five hundred portions have thus been distributed. Many physicians have returned choice crusts to the office of the Board, thus giving valuable assistance in keeping up a supply of reliable vaccine, both pure and fresh.

The Board are pleased to be able to repeat their expression of last year. "In the many thousands of cases vaccinated by their officers, and by physicians in the city and country, with vaccine furnished by the Board no accident has occurred." In the reports of the Sanitary Inspectors will be found interesting details on this subject.

In view of the exposure of vast numbers of the people of this State—probably not less than two hundred thousand—to sickness and death from small-pox, the Board of Health recommend the passage of a law upon the subject, the projêt of which was embodied in their report of last year.

MORTALITY BY ALL FEVERS.

From the 1st to the 30th of May, weekly reports from Registrar's Office of all deaths by *all fevers*, and from June 1st to November 1st, daily reports, were made by the Sanitary Inspector of the Second District, according to instructions from the office of the Board of Health. The particulars of each death were immediately furnished to the Sanitary Inspector in whose district it occurred for investigation and report. These reports gave information as to whether any local causes existed for the death, which could be remedied by sanitary interference; secondly, made it nearly impossible that a death by yellow fever could escape the cognizance of the Board.

The experience of last year, when thirteen persons who died of undoubted yellow fever were interred as pernicious, congestive, and other forms of malarial fevers, and the consequent failure to apply disinfectants at the moment when most, if ever valuable, namely; at the very beginning of an epidemic, demonstrated the importance of this measure.

These examinations also show, that a large portion of the deaths in New Orleans from fevers, are not the result of the malarious atmosphere of the city, but are contracted upon the rivers and along lines of railroad, and thence are brought into the city; many of the unfortunates arriving, even *in articulo mortis*, thus to increase its unenviable reputation for insalubrity.

In many cases, the reports showed a local cause for the fatal sickness, such as stagnant water under the houses, filthy and insufficiently drained yards, etc.

YELLOW FEVER.

The following table comprises all deaths, and all well marked cases of the diseases during the year 1871:

List of cases of Yellow Fever occurring in the city of New Orleans during the year 1871.

No. of case	Date when taken sick.	Names.	Residence.	Result.
		JULY.		
1	July 30,	Geo. C. Collinberg.	Head of Harmony street.	Died.
		AUGUST.		
2	Aug. 15,	John M. Rawlins.	118 Washington street.	Died.
3	" 31,	George Moussé.		Died.
		SEPTEMBER.		
4	Sept. 5,	George Hoch.	433 Tchoupitoulas street.	Died.
5	" 7,	Edward W. Pierce.	136 Fourth street.	Died.
6	" 9,	David Rosenberg.	736 Magazine street.	Died.
7	" 9,	Mrs. M.	172 Laurel street.	Recovered.
8	" 10,	Mrs. H.	140 Fourth street.	Recovered.
9	" 11,	Sarah (servant).	140 Fourth street.	Recovered.
10	" 14,	H. C.	Cor. 7th and Chippewa sts.	Recovered.
11	" 14,	Mrs. C. K.	Chip. bet. 6th & Washington	Died.
12	" 14,	Mrs E. K.	96 Washington street.	Died.
13	" 15,	E. B. H.	140 Fourth street.	Recovered.
14	" 16,	Servant of Mrs. B.	142 Fourth street.	Recovered.
15	" 16,	C. P.	129 Washington street.	Recovered.
16	" 17,	F. W., (c).	138 Fourth street.	Recovered.
17	" 17,	H. B.	92 Washington street.	Died.
18	" 18,	M. H.	550 Thalia street.	Died.
19	" 18,	L. C. M.	Cor. Peters av. and Pitt st.	Recovered.
20	" 20,	Miss A. H.	140 Fourth street.	Recovered.
21	" 20,	B. F. C.	123 Washington street.	Recovered.
22	" 20,	Mrs. A. B.	111 Washington street.	Recovered.
23	" 20,	Miss H.	102 Felicity street.	Recovered.
24	" 21,	R. L.	119 Washington street.	Recovered.
25	" 21,	J. M. K.	505 Annunciation street.	Recovered.
26	" 23,	J. H.	48 Robin street.	Recovered.
27	" 24,	J. H. G.	134 Washington street.	Recovered.
28	" 24,	E. M.	117 Washington street.	Recovered.
29	" 25,	M. C.	20 Adele street.	Died.
30	" 25,	D. S.	C'nsta'ce, b.StAnd.& StMary	Recovered.
31	" 26,	Mr. B.	162 Julia street.	Recovered.
32	" 27,	Mrs. O. H.	189 Carondelet street.	Died.
33	" 27,	Mrs. P.	780 Magazine street.	Recovered.
34	" 27,	H. J.	Homeless, died at C. Hosp.	Died.
35	" 27,	Mrs. K.	233 Laurel street.	Recovered.
36	" 27,	Mr. E.	133 Calliope street.	Recovered.
37	" 28,	S. W. G.	129 Washington street.	Recovered.
38	" 28,	C. S.	190 Third street.	Recovered.
39	" 29,	N. J. R.	Cor Bienville & Franklin sts.	Recovered.
40	" 29,	M. H.	Cor. Poydras and Front sts.	Died.
41	" 30,	G. K.	Homeless, died at C. Hosp.	Died.
		OCTOBER.		
42	Oct. 2,	Mrs. W.	780 Magazine street.	Becovered.
43	" 3,	J. A.	Cor.Tchoupitoulas & 7th sts.	Died.
44	" 6,	J. McM.	180 Third street.	Died.
45	" 8,	A. D.	126 Sixth street.	Died.
46	" 9,	Miss A. McA.	48 Robin street.	Recovered.
47	" 9,	H. B.	Cor. Religious and Race sts.	Recovered.
48	" 10,	J. B.	Cor. Tchoup and Celeste sts.	Recovered.
49	" 11,	N. S.	18 Lafayette street.	Died.
50	" 12,	G. S.	129 Washington street.	Recovered.
51	" 12,	J. S.	433 Tchoupitoulas street.	Died.

List of cases of Yellow Fever in New Orleans for 1871, *continued.*

No. of case	Date when taken sick.	Name.	Residence.	Result.
52	" 12,	E. K.	53 Delta.	Died.
53	" 14,	G. A. B.	118 Washington	Recovered.
54	" 15,	Mrs. P.	499 Annunciation.	Recovered.
55	" 16,	W. P.	725 Magazine.	Recovered.
56	" 17,	Servant of Mrs. B.	Corner Religious and Race.	Recovered.
57	" 18,	T. W. C.	18 Dryades.	Recovered.
58	" 18,	P. D.	440 Decatur.	Died.
59	" 19,	Mrs. B.	Corner Religious and Race.	Died.
60	" 19,	H. L.	969 Tchoupitoulas.	Died.
61	" 19,	E. G.	Chippewa bet. 7th and 8th.	Died.
62	" 20,	B. (child).	Corner Religious and Race.	Recovered.
63	" 20,	B. (child).	Corner Religious and Race.	Recovered.
64	" 20,	Mrs. G.	Cor. Magazine & Washington	Recovered.
65	" 20,	J. M.	Corner Robin and Levee.	Died.
66	" 20,	J. F.	58 New Levee.	Died.
67	" 20,	G. F.	16 St. Philip.	Died.
68	" 21,	T. C.	Algiers.	Died.
69	" 22,	T. D. M.	178 Third.	Died.
70	" 23,	C. B.	239½ Old Levee.	Died.
71	" 24,	F. S.	82 Rampart, First District.	Died.
72	" 24,	F. F.	239½ Old Levee.	Died.
73	" 24,	M. W.	Cor. Austerlitz and Laurel.	Died.
74	" 24,	C B.	503 Constance.	Died.
75	" 24,	E. L.	65 Frenchmen.	Died.
76	" 24,	I. D.	67 Frenchmen.	Recovered.
77	" 24,	W. B.	11 Marigny.	Died.
78	" 25,	H. B.	Constance bet. 4th and 5th.	Recovered.
79	" 25,	A. B.	Constance bet. 4th and 5th.	Recovered.
80	" 25,	W. G.	125 Washington.	Recovered.
81	" 25,	E. F.	290 Laurel.	Recovered.
82	" 25,	J. M. L.	105 Laurel.	Recovered.
83	" 25,	J. L. L.	476 Baronne.	Died.
84	" 26,	T.	749 Magazine.	Recovered.
85	" 26,	M. G.	239½ Old Levee.	Recovered.
86	" 26,	D. G.	38 Franklin.	Died.
87	" 27,	A. H. A.	457 Constance.	Died.
88	" 27,	T. D. S.	772 Magazine.	Died.
89	" 27,	M. F.	290 Laurel.	Recovered.
90	" 27,	Mrs. D.	118 Washington.	Recovered.
91	" 28,	M. C.	Cor. Laurel and Washington.	Died.
92	" 29,	E. H.	119 Washington.	Died.
93	" 30,	L. D.	23 Hospital.	Recovered.
94	" 30,	J. O'B.	Cor. Poydras and New Levee.	Died.
		NOVEMBER.		
95	Nov. 1,	Mrs. M. R.	12 Franklin.	Died.
96	" 2,	H. I.	35 Gasquet.	Died.
97	" 3,	M. D.	113 Morales.	Died.
98	" 3,	E. G.	168 Philip.	Recovered.
99	" 4,	Miss M.	Napoleon av. cor. Prytania.	Recovered.
100	" 4,	E. C. W.	178 Third.	Recovered.
101	" 5,	W. S.	145 Liberty.	Recovered.
102	" 5,	Mrs. A. A. W.	774 Magazine.	Recovered.
103	" 5,	Miss W.	774 Magazine.	Recovered.
104	" 10,	F. B.	Cor. Franklin & Customh'se.	Died.

List of cases of Yellow Fever in New Orleans for 1871, *continued*.

No. of case	Date when taken sick.	Name.	Residence.	Result.
105	" 12,	W. A.	173 Philip.	Recovered.
106	" 12,	H. A.	173 Philip.	Recovered.
107	" 15,	E. G.	48 Dumaine.	Died.
108	" 15,	D. M.	14 St. Philip.	Died.
109	" 16,	Miss B, F. C.	Cor. Laurel and La. ave.	Recovered.
110	" 16,	J. B.	239½ Old Levee.	Died.
111	" 20,	S. B.	239½ Old Levee.	Died.
112	" 21,	J. M.	Cor. Lafayette & New Levee	Died.
113	" 30,	A. W.	720 Magazine.	Died.
		DECEMBER.		
114	Dec. 18,	J. W. R.	12 Franklin.	Died.

Case 1. On the 4th of August, Charles Collinberg, of Iowa, was taken to the Charity Hospital, where he died the same night of yellow fever, with black vomit.

Investigation of the case furnished the following facts: He came to the city by the way of the river, as flatboatman, about four weeks previously; was homeless, without occupation, slept about the elevator wharf, and drank all the liquors he could pay for, or get upon credit. The night before being taken to the Hospital, he was received upon the floating elevator, as an act of charity, and given sleeping quarters. For not less than four nights previous, he had been sleeping about the bark "Mary Pratt," from Cienfuegos, discharging sugar into the Elevator warehouse. The "Mary Pratt" brought a clean bill of health to the Quarantine Station, and had no sickness on board.

After her arrival in the city, the crew were discharged, the captain took rooms in the city, and only the mate was left on board. At this date her hatches were opened, and whilst discharging cargo, Collinberg slept on board, and was taken sick.

The stevedore's gang, which discharged the cargo, were found to be composed of men long residents of the city, and fully acclimated.

These facts, and the hygienic condition of Collinberg, from his mode of life, probably account for his being the only sufferer from this supposed infectious vessel.

Disinfection by sulphurous acid and chlorine was practiced on the floating elevator, and in the elevator warehouse for several days, and the ship sent to the Quarantine ground, to be disinfected at the discretion of the resident physician. The crew were followed to their boarding house, and their effects thoroughly fumigated and aired.

Permission to take away the sugars stored in the warehouse by St. Louis steamboats was granted, as their own hands rolled out and landed the sugar, and they then went on up the river immediately, thus exposing the city to no danger, and the material feared to be infectious was at once carried to a different climate, where danger was certainly not probable, scarcely possible.

One steamboat made application to take in a cargo of this sugar, and then return to a wharf in the city for twenty-four hours. This permission was not granted.

The history of the "Mary Pratt" in connection with the yellow fever of 1871, will be completed by stating, that on August 10th, she was sent up from the Quarantine Station, and on August 13th, was laid to the wharf, foot of Terpsichore street.

August 23d, George M. Moussé was employed as steward, and began work on board the "Mary Pratt," cleaning up her cabin, reported to be in a very filthy state, but was taken sick with yellow fever on the 29th, was removed to the Hotel Dieu September 4th, and died September 5th. The vessel was again taken in charge by the Sanitary Inspector of the First District, thoroughly fumigated for a number of days, and no unacclimated persons allowed on board.

Unless the case of Hoch, reported further on, had some connection with her, this vessel has no further relation to the yellow fever of this year.

Case 2. August 15th, Mr. John M. Rawlins, Customhouse Inspector, was attacked with yellow fever, and died August 20th, at his residence, 118 Washington street.

Mr. Rawlins was from Alabama, had been a resident of the city ten months. He left the city on duty for the Passes, July 29th; took official charge of the brig "Hope," August 11th, then 11 days from Havana, with no sickness on board.

The "Hope" was detained at the Quarantine Station two days, hatches opened, and enough of the sugar broken out to enable thorough fumigation to be effected of both cargo and hold.

The hammock of Mr. Rawlins was swung near the opened hatches and although warned by the physician as perhaps exposing himself to disease by this proximity, he expressed his entire fearlessness as to the danger, and remained in the position before mentioned.

Less than forty-eight hours after his arrival in the city, and four days after the arrival at the Quarantine Station and opening of the ship's hatches, he was taken ill. The officers and crew of the "Hope" was all acclimated, her cargo went up the river immediately, and within a very few days she was again at sea.

Case 3. The particulars of the case of George Moussé, taken sick on board the "Mary Pratt," have been already given.

Case 4. John Hoch, a tailor by trade, working and residing at 433 Tchoupitoulas street, between Robin and Race streets, first and second streets above Terpsichore street, at the foot of which lay the "Mary Pratt." Hoch had been in the city six months, confined himself entirely to the house and shop, save at evening, at which time the family state, he always *went down to the Levee to walk about.* No exposure to any infected place could be ascertained.

This case is of interest, from its apparent isolation, and also because later in the season, its vicinity became or proved to be an infected locality.

Case 5. Hon. E. W. Pierce, a member of the Board of Health, was taken ill of yellow fever at his residence, No. 136 Fourth street, September 7th, and died upon the 13th. This was the first case of what might be called the local epidemic of 1871.

The residence of Mr. Pierce was distant about 280 feet from the house in which Mr. Rawlins (case No. 2) died, and in a direction a little to the East of North, diagonally across the block of buildings. The residence of Mr. Rosenberg (case No. 6) the second of this epidemic of the Fourth District, was in the

same line of direction diagonally across another block. The prevailing direction of the winds in July and August is from South to North. Between the residences of cases Nos. 2 and 5, intervened a cottage, but from the gallery of the second story of the house of Mr. Pierce, was a direct and full view, *over* the cottage, of the house where Mr. Rawlins died.

Just after the death of Mr. Pierce, it was ascertained that two unacclimated children in this same cottage, had been sick just previous to his illness from febrile disorders, called congestion of the brain and intermittent, but a few days later, another child was taken ill in a similar manner and pronounced yellow fever.

As these two cases were not reported, as such, nor submitted to examination, they do not appear in the foregoing table.

It is probable that these were cases of yellow fever, and form the connecting links between the cases of Mr. Rawlins and Mr. Pierce.

By the culpable neglect of the attending physician, information of the occurence of the case of Mr. Rawlins did not reach the Board of Health, until twenty hours after his decease. Measures of disinfection could not be put in operation for some hours later.

It is not supposed that the patient himself breeds the poison, but that he suffers from its presence in that locality, or that he may have brought, by baggage or otherwise, those seeds of the disease, which, finding a congenial soil and climate, multiply and enlarge the circle of poisonous infection in perhaps every direction.

It seems probable that desinfection in the case of Mr. Rawlins came too late, and even though where applied destroying the poison, whether chemical agent, vegetable or animal germinal matter, nevertheless *left beyond the circle of its operation*, poison or poison producing matter to increase, and assisted by favor ing winds to move forward and cause the other cases, which appeared at somewhat long interval.

As will be seen by the table, cases rapidly increased, and on the 13th, Dr. F. B. Albers, Sanitary Inspector of the Second

District, where occurred the local epidemic of last year, was claced in charge of the infected district.

The Sanitary Police of both the First and Second Districts, reported to him for duty, and the Board of Metropolitan Police coöperated cordially, and detailed as many officers as were required by the Board of Health.

The full particulars of this work and mode of use of disinfectants are given in the report of Dr. Albers.

The experience derived from the case of Mr. Rawlins led to the more *general* application of disinfectants.

It was kept clearly in view that though the sick persons were confined to a limited space, yet the poison was of necessity more widely spread.

It is evident that the presence of the poisonous agent must and does precede for some hours, if not days, the attacks of illness.

The peculiar localization of yellow fever, as observed in previous years, and its slow and regular march forward in these localities, suggests that if it be the multiplication and spread of either vegetable or animal life, that agents powerfully inimical thereto, although not able to reach all hidden and closed places, and thus utterly destroy all germs, might at least destroy those likely to be carried about or wafted on, to infect neighboring localities. If the poisonous, or poison causing agent, spread along the ground, it seemed not unreasonable to hope that a powerful agent, like carbolic acid, freely applied to the streets, would prevent its crossing them, and by its vapor rising into the air, as it were, wall in the infected places.

The effect of the thinnest possible film of corrosive sublimate, in preventing insects from crossing into safes and cupboards, is a fact of domestic economy well known. There may be remedies of analogous action towards the cause of yellow fever.

In the report of last year, it was stated in reference to the cause of the confinement of the fever to certain localities, and its slow progress, that at the date when the disease reached its height, the weather became very cool and dry, and so continued for many weeks.

During the prevalence of yellow fever this year, in marked contrast to last year, the weather remained warm, exceedingly sultry, rainy, with a remarkably stagnant condition of the atmosphere, greatly resembling the early period of the epidemic of 1853. Owing, however, it may be, to the energetic disinfection practiced, the fever, for a few days, almost entirely disappeared, while the weather remained unchanged.

Attention is invited to the interesting and able report of Dr. Albers in connection with this subject.

In this report will be found the measures adopted by him as considered likely to prevent the appearance of yellow fever in that portion of the Second District where prevalent last year.

A thorough precautionary disinfection was undertaken by Dr. Clark of the First District, and by Dr. Perry of the Third, in the month of August, in regard to localities affected by fever last year. With the exception noted in the Second District, and cases No. 31 and No. 32, *no case of fever* occurred this year in this same locality where it prevailed last year. It seems a fair inference that the poisonous cause of yellow fever did not outlive the winter of '70--'71. What proportion of this result, if any at all, is to be attributed to the disinfections last fall, and the precautionary ones of this summer, cannot be determined.

That it was not for lack of human material upon which to feed is plain, because unacclimated people abound in those very sections of the city scourged by yellow fever last year.

It is a matter worthy of being placed upon record, whether in this latitude yellow fever is ever epidemic in identical localities in successive years, or that any one premises *originate* cases in successive years.

Dr. J. C. Nott states, that in 1842, yellow fever prevailed over that portion of the city of Mobile to the southern side of Dauphin street; the next year beginning at the street where it ceased, passed completely over the remaining portion of the city. In 1870, Mobile suffered from a general epidemic. In 1871, but one death occured, that of a man arriving there sick, via New Orleans from Natchez, at which latter place he contracted his sickness.

These facts seem to suggest that the yellow fever plant, or contagium particle may by its growth, or during its development, and general prevalence, exhaust its soil (the locality of its morbific influence), of those elements necessary to its growth, and which may require some time to again accumulate. It is not difficult to conceive of a vegetable growth so developed by unusually favorable, known or unknown, climatic and meterological conditions, as to almost exhaust its soil of the ingredients peculiarly necessary to its existence, and to so considerable a degree, that for successive years, in unfavorable conditions, the same growth should be but feeble and of scanty distribution.

Experience seems to teach, that if the disinfection practiced this year be of value, that a repetition of it at brief intervals, is probably necessary.

Begging the truth of the "Germ Theory," it is easy to make a plausible explanation of this necessity.

The cause of yellow fever is invisible or microscopic, but is present in abundance. Disinfection reaches and destroys the larger portion of these animal or vegetable organisms, and checks the progress of the disease, or even completely destroys it. The conditions of soil and meterological conditions are favorable, or the disease would not have appeared, and still remain favorable. The few germs not reached, multiply rapidly, and in a few days the morbific cause is ready to attack any who come within its influence.

The apparent limitation of disease to very narrow bounds, and the long period in which it remains active in them, and the difficulty of its complete eradication, could, on this theory, meet a satisfactory explanation, when the impossibility of reaching every portion of a locality, and every particle of infectious matter, in a house in daily use by human beings, is considered.

The experience of the family of Mr. D——, the brother-in-law of Mr. Rawlins, occupying the other half of the double tenement, has interest in connection with the subject of disinfection. Believing from the beginning of the case of Mr. R——, that his attack was one of yellow fever, the residence of Mr. D——, was thoroughly treated by disinfectants. and every person who waited upon Mr. Rawlins, or even visited the rooms, on coming

from them, made a complete change of *all* their *clothing*, which was without delay, carried from the rooms and washed.

No case of yellow fever occurred in this family till the one No. 53, on October 14th, and No. 90, October 27th, both of which were so light, that the attending physician is doubtful of the diagnosis given. On the 14th and 15th September, cases occurred in houses each side of the residence of Mr. D——, and by the 14th of October there had been twenty-seven unmistakable cases within a circle of a radius of 150 feet, taking the house of Mr. Rawlins as center.

Owing to the almost complete cessation of yellow fever about October 1st, in this district, as will be seen by reference to the table, general disinfection had ceased, and none was used until recurring sultry weather, and the appearance of new cases of fever indicated the propriety of its use.

The experience of this family, and the use of disinfectants may be only a coincidence, but is worthy of consideration and record.

The history of the Fourth District epidemic may be closed with the statement, that the total number of cases in that district, measuring one and three-fourths miles long and one mile wide, was sixty-six, of which twenty-four (24) terminated in death.

The striking localization of the fever is made evident by the fact, that within an area of which the corner of Constance and Washington (the house of Rawlins), is the centre, and extending in every direction from that point, six hundred and sixty feet, occurred forty-five (45) of the total number of cases, and fifteen (15) of the deaths.

The case of M. H., No. 18, September 18th, was an isolated one.

He was carried sick from the Jackson Railroad Depot, where he was night watchman, to the house of friends at 350 Thalia street. He had been in ill health for six months, suffering from Malarial fevers, and presented the appearance of a man of a broken down constitution, affected by a prevailing type of disease.

No exposure to infection could be traced. It is not improper

to suggest his connection with trains and persons direct from Jackson, Mississippi, where yellow fever then prevailed. Disinfection was put in force only at the house where he died. No other case occurred in this vicinity.

September 21st, H. W. died at the Charity Hospital. A post mortem examination was made, and the case decided not to be yellow fever. Its appearance rendered it certainly a "*suspicious*" case. An inspection was ordered of the vicinity of the corner of Thalia and St. Thomas streets, the locality whence he came, well known as an insalubrious neighborhood. As the report showed it in a very unhealthy condition, a thorough cleansing of houses, and complete disinfection of both yards and streets was promptly made. No other cases of fever occurred in that neighborhood.

Case No. 26. J. H. was taken sick at 48 Robin street, September 23d.

This case appeared sporadic, as no exposure to infection could be discovered. Case No. 46. A. A., his affianced visited him during his illness, and after his removal to the Charity Hospital, about September 26th, came to live with her aunt at 48 Robin street, and on October 9th. was taken sick with yellow fever, although disinfection and fumigation had been practiced on these premises immediately after his removal. It is barely possible that the incubation of the fever may have been for thirteen days, or possible that the fever causing poison had reinvaded the premises after disinfection.

Numbers 48 Robin street, 433 Tchoupitoulas street, and the corner of Religious and Race streets,—residence of the Blake family—(the two latter, on the same block,) are in a direct line from east to west, the line being about one and one-half blocks long, and diagonally across the blocks of buildings.

At 433 Tchoupitoulas street, 180 feet distant from 48 Robin street, had occurred the case of Hoch, No. 4 of the table, and here, on the 12th of October, occurred case No. 51 of table, J. S.

On the 9th of October occurred the sickness of Mr. Blake, No .47 of table. On the 17th, sickness of servant of Mrs. Blake,

No. 56; 19th, that of Mrs. Blake, No. 59; and on the 20th, cases of two children, Nos. 62 and 63; and a case from corner of Robin and Levee streets, No. 65, J. M., who was sent to Charity Hospital.

Through the blameable negligence or perversity of the attending physician, the sickness of Mr. Blake occurring on the 9th, was not reported, and the Board of Health had no knowledge of the case until the whole family was sick.

At this time Dr. Clark promptly and thoroughly disinfected these blocks of houses, and the streets bounding them. No other case of yellow fever occurred here, although it is evident that this was a well marked focus of infection.

The recurrence of the fever at the residence of Hoch, may perhaps be considered an illustration of the difficulty of destroying all the fever-causing agent before spoken of, and its subsequent reproduction.

Several cases of yellow fever came to Charity Hospital from the coffee and boarding house at the corner of Poydras and Front Levee streets. The boarding house itself was kept in an excellent sanitary condition, but the vacant lots and the streets in its vicinity were filthy in the extreme. All these cases but one could be traced to exposure at Natchez or Vicksburg, and there was good reason for believing in exposure to infection of that one also.

Case 31. Mr. B., 162 Julia street, isolated; no source of infection known; premises disinfected.

Case 32. Mrs. H., 189 Carondelet street. No exposure to infection known; case an isolated one; disinfection used. These are the only two cases of fever which occurred this year in that portion of the First District where yellow fever prevailed last year.

Some cases of yellow fever are said to have occurred near the Galvez canal, on Poydras near Perdido street. As all recovered, it seems not improbable that these were attacks of malarious fever, modified for the worse by the horrible sewer exhalations which abound in that region.

Case 57. T. W. C., 18 Dryades street, an isolated one. Attributes his attack to contact with his secretary, who nursed

a case of yellow fever for several nights in succession, but spent every day in the office. Mr. C. had been no further up town than Julia, nor below Canal; no further east than St. Charles, or further west than Dryades street. Fumigation of house practiced; no other case occurred for many blocks in either direction.

The history of yellow fever in the Second District, and the views of Dr. Albers in regard to it will be found in his report.

Case 39. September 29th, N. J. R., corner Franklin and Bienville streets, is admitted by most who saw it, to have been a case of yellow fever. Mr. R. was at once removed to Hospital, and disinfection practiced, and the next case (No. 86) that appeared in that vicinity, was that of Dominique Garsello, on the 26th of October.

The remarks in regard to the efficiency of disinfection, made in connection with the history of yellow fever in the Fourth District, are applicable to this case.

It is of interest to note that after the death of Garsello, no disinfection was practiced, and that Franklin street, near Bienville street, became a focus of infection, and that the last case of the year declared itself at that point.

In the Third District only five cases of fever occurred. The particulars will be found in the report of Dr. Perry.

Two were infected cases from Natchez. Disinfection was used in each locality, and no second case occurred.

Case 99 of the table furnishes matter of interest. Miss M. arrived in New Orleans October 26th, and went to her home on Napoleon avenue, a locality where no yellow fever had appeared. Contrary to cautions given, she visited the infected district, in the vicinity of Fourth and Constance streets, remaining there several hours. Nine days after her arrival, she was attacked with yellow fever, but after passing to the stage of black vomit, recovered. All the other members of the family had remained in the city during the summer, but had been careful not to visit the infected locality, and during her illness disinfectants were used freely and persistently by the attending physician.

In addition to the above recovery from yellow fever, after

black vomit had occurred, are recorded the cases of two adult males and one child, being a total of four.

Of the six cases known to have reached the city from Natchez, and other places to the northward infected with yellow fever, five died.

The infected localities out of the city were so many, that it is quite probable that some of the cases scattered through the city, instead of being presumably sporadic, were in fact cases of non-traceable, though by no means non-existent infection.

On October 3d, occurred a violent storm, which to the southward and eastward assumed the proportions of a hurricane. The rain fell in enormous amount, flooding yards and streets, and the violence of the wind, thoroughly ventilated the most out-of-the-way corners.

Ten 9-10 inches of rain fell in twenty-four hours. By examination of the table of five cases, it will be seen that the Fourth District epidemic had greatly declined before the coming of the storm.

The storm seems, however, to have exerted a decided and favorable influence on the public health, as but three domestic cases of fever died in the next fifteen days. The three other deaths being of cases foreign to New Orleans.

The use of disinfectants in yellow fever is of course empirical. Theories in regard to their use and mode of action are liable to be modified or overturned by the logic of facts.

The Board of Health have no theory save that announced in their report of last year. "All cases were treated by those disinfectants which have the known effect of purifying the air by the destruction of noxious odors, and have been found valuable in preventing the spread of other epidemic diseases.

The experience of the year is in favor of their use. Some families in which they were used freely on the occurrence of the first case, escaped additional attacks. Other families in which by prejudice or neglect of the physicians, or their own choice, they were not used, the disease passed through the whole family attacking all its members in succession.

The general prevalence of the disease in the Southern States,

and numerous cases scattered about in New Orleans, show that the failure of the fever to become general, was not owing to any unfavorable meteorological or climatic conditions.

Last year New Orleans suffered from yellow fever. Its ravages were confined to three blocks in the Third District, a limited portion of the First District, and as an epidemic it was confined to a portion of the Second District of four squares by twelve. In Mobile it began later than in New Orleans, but attacked every portion of the city.

In New Orleans *great efforts were made to arrest* the disease by hygienic remedies. *No efforts whatever were made in Mobile.*

This fact seems of value. In every Southern city, town or village, where yellow fever appeared at all this year, it assumed the epidemic form, save in New Orleans, and New Orleans is the only place where an early, energetic, well-planned and persistent attempt was made to control the disease.

The obscurity of the origin of yellow fever, however, and of its mode of spreading, the perplexing and apparently contradictory facts which it affords, during a series of years, to the careful observer, are well set forth in the humorous paradox of the distinguished Dr. Warren Stone, "the man knows most about yellow fever who has seen the least of the disease."

COAL OILS.

A large number of accidents from the use of dangerous illuminating oils have taken place. These dangerous oils have been the cause of numerous fires and considerable loss of property, of the slight injury of some, the severe injury of others, and the death of a number of persons.

These accidents have invariably occurred, as frequently announced to the public, from the use of light hydro-carbon oils or fluids, sold under some captivating title, as *non-explosive*, but actually nothing but benzine, naptha or gasoline, or have been caused by oils of which the larger portion was "heavy," but were contaminated by naptha or gasoline, which *light products of petroleum*, used either alone or mixed with good oil, *are invariably the cause of all accidents from illuminating oils.*

The Board of Health is pleased to say, that its efforts to in-

struct the community in the method of distinguishing safe from dangerous oils, through the public prints, and by the personal labors of the Sanitary Inspectors, have, in some degree, been successful, especially as enforced by the powerful lesson of daily accidents. The Sanitary Inspectors of the Third and Fifth Districts inform the Board that the use of light, dangerous coal oils, has almost entirely ceased in their districts, and in consequence no accidents from this cause have of late occurred there.

The Board of Health see no reason to withdraw their recommendation of last year as to the propriety and necessity of legislation in this direction, and again commend to your favorable consideration their projêt of a law on this subject offered in their last annual report.

LABORATORY.

Dr. A. W. Perry, Sanitary Inspector of the Third District, has acted as chemical expert for the Board during the year.

The attention of the Board was called by a prominent druggist of the city, to the supposed serious danger to the health of the community from the use of syrups manufactured from starch by the action of sulphuric acid. The communication was referred to Dr. Perry for investigation. The result of his examination is given in a paper on the subject in the appendix to this report. His results correspond with the opinion given by other chemists as to the safety of their use.

Important inquiries have also been made into the question of sewerage, and into the methods of street management, in a scientific and sanitary point of view. The reports on these subjects are of very considerable interest, and attention is invited to them.

The treatment of hydro-carbon illuminating oils by chemical agents, for the purpose of rendering them non-explosive, was made the subject of another inquiry. The fact of the absorption of carbonic acid in large quantities by naptha, and the experiments in regard to the explosiveness of hydro-carbons thus saturated, are not mentioned, it is believed, by any authorities on the subject.

Certain disinfectants proposed for the use of the Board of Health have been submitted to chemical examination, as, for example, "Llado's" "Liquid" and "Dry" Disinfectants," and Bromo Chloralum. None of these possess much intrinsic value, and none compare in efficiency and cheapness with the sulphate or chloride of iron and carbolic acid.

The "Liquid Disinfectant," thus termed by the New York Board of Health, consisting of ninety (90) per cent. of a saturated solution of sesqui oxide of iron in hydrochloric acid, and ten (10) per cent. of carbolic acid, as indicated by theory, has been proved by experience to be the best and cheapest disinfectant for all full vaults, and places where human excretions are liable to decompose and taint the air.

For street and gutter disinfection, as will be seen by the report of Dr. Perry, in his experiments on treatment of sewage by chemical agents, carbolic acid is greatly superior to all other known substances.

MILK SUPPLY.

Attention has been paid to the quality of the milk furnished to the community.

In the large number of specimens examined no adulteration has been found save water.

Prosecutions before civil courts have been brought in a considerable number of cases. This process is, however, not sufficiently summary, and the opportunity of prosecutions in the the criminal courts in certain cases, if afforded by change in the law granting powers to the Board of Health, would add greatly to its efficiency in the regulation of this, as of many other matters affecting the public health.

Numerous examinations of pure milk, demonstrate that the standard at this point, is different from that adopted by the New York instrument makers.

The Lactometer marking 20 degrees in pure milk, here marks but 17* degrees. The purity of the milk furnished to the public by our dealers is tested by the standard furnished by our own examinations.

PUBLIC MARKETS.

The public markets have been subject to frequent inspections during the year. The meats and vegetables furnished the community have been of wholesome quality. Dr. Ames, as will be seen by his report, submitted a large number of specimens of pork to microscopical examination, but found them absolutely free from trichinæ.

The establishment of the abattoir below the city, where all animals whose flesh is designed for our markets must be slaughtered, is a great and most fortunate change from the method formerly prevailing.

The advantages of the change may be briefly summed up as follows:

First. The change secures that animals which have died of themselves, are not prepared for sale in the markets.

Second. Secures the proper inspection of meats after animals are slaughtered, and before being put on sale in the markets.

Third. Relief afforded from slaughter-house offal, formerly thrown into the river above the city, which frequently lodged along the steamboat and ship landings, and under the wharves.

Fourth. Every slaughter-house, unless most carefully kept, was formerly a nuisance; contaminating soil and air in the vicinity. The abattoir, being carefully planned, and well managed, all offal goes into the river, below any but plantation buildings, and whatever taint of the atmosphere is created, is by the winds carried away from any crowded population.

Fifth. The dangers to citizens, of cattle driving through the streets is removed.

Sixth. The demoralization of the young by the exhibitions of cruelty by the drivers of cattle, is also obviated.

On the whole, the comfort and advantage to the citizens from this change, are so great that it can only be appreciated by experience.

SUB-SOIL WATER.

The attention of persons interested in sanitary matters having been drawn by Pettenkofer to the connection between the

level of sub-soil water, and the prevalence of certain fevers in the city of Munich, and it having been often asserted that yellow fever never prevailed with a high river, and that the presence and altitude of sub-soil water depended on the height of the river, and the percolation by pressure of its waters through the soil, a series of frequent observations has been maintained in all the six districts on the altitude of the sub-soil water of this city.

The observations of this year show, that while the river has varied ten feet during the summer, from extreme high water to lowest water mark, that the largest variation of sub-soil water has been but two feet, and that the slight variations recorded are altogether dependent on the surface water, derived from more or less heavy rains, and of following drought of greater or less continuance. These observations will be continued during the year 1872.

SANITARY OPERATIONS.

These have been conducted on the same general plan as last year.

A thorough inspection of all the premises of the city has been made, and various facts of sanitary importance have been developed.

The reports of the Sanitary Inspectors of the several Districts, furnish a detailed statement of the general facts ascertained. Repeated inspections have been made in those portions of the city in most unfavorable hygienic condition. All nuisances tending directly or indirectly to impair the public health, have, as far as within the power of the Board, been promptly abated.

The Honorable Board of Police Commissioners have most cordially seconded the efforts of the Board of Health, and have furnished promptly all the men called for.

The number of police force on duty has varied considerably owing to especial need while the general inspection was going forward, and also while the city seemed threatened with an epidemic of yellow fever.

NO
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OSCILLATIONS

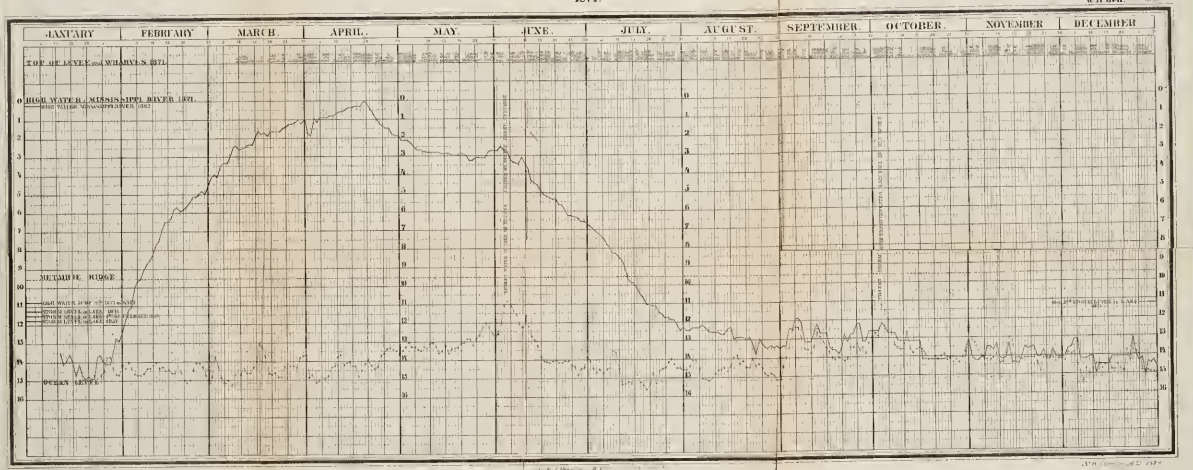
MISSISSIPPI RIVER AND LAKE PONTCHARTRAIN.

NEW ORLEANS

From daily Observations at NOON by the City Surveyors Department during the year

1871.

W. H. Bell.



The average number of policemen on sanitary duty has been, through the year, thirteen.

The amount of labor performed by them is very large, as will be seen by the following summary of sanitary work done during the year.

The officers who have been permanently on duty with the Board of Health are intelligent, willing and industrious men, and deserve honorable mention for their valuable services.

Table of sanitary work done in the six districts during the year 1871:

Inspections made	49,421
Reinspections	22,156
Nuisances found requiring abatement	10,883
Notices to empty vaults	10,437
" " rebuild "	111
" " repair "	511
" " disinfect "	3,112
" " clean premises	1,815
" " fill lots	386
" " drain lots	40
" " remove hogs	226
" " supply water	162
" " repair buildings and roofs	109
" " raise and drain alleys	23
Dangerous buildings reported	48
" fences "	37
Offensive trades reported upon	10
Premises disinfected	3,970
Premises fumigated	130
Squares disinfected for overflow	264
Squares disinfected for yellow fever	222
Specimens of milk procured for examination	418
Privies reported for non-compliance	194
Coal oil accidents reported	69
Vaccinations	2,110

Among other measures to prevent disease and promote public health, the following article was published in all the daily

journals, and in the form of a circular, in English, French and German, by means of the Sanitary Inspectors and their assistants, was generally distributed.

Many persons are indifferent to the advantages to be derived from absence of foul odors, to which custom has made them careless, but a still larger portion, would gladly be freed from such noxious emanations, if they possessed the requisite information. This circular, as will be seen, gives information as to nature, mode of preparation, uses and cheapness of disinfectants, and thus enables citizens to care, intelligently, for their own health.

"OFFICE BOARD OF HEALTH,
NEW ORLEANS, LA., JULY 8, 1871.

"The Board of Health recommend to their fellow citizens, the liberal use of disinfectants and deodorants during the summer months.

"The best and cheapest permanent disinfectant and deodorant for privy vaults, for all stagnant places where the decomposing and vegetable matters are not likely soon to be removed, by natural or artificial means, is what has been designated (as somewhat suggestive of its ingredients) the Carbolo-hydrochloric Disinfectant.

"This is prepared by dissolving carbonate or sesqui oxide of iron in strong hydro-chloric (muriatic) acid. To the acid thus saturated with iron, six one-hundredths of carbolic acid is added.

"Half a pint of this liquid, poured into a privy vault every ten or fifteen days, will keep any ordinary vault entirely free from bad odors.

"For gutters, and drains of yards, and street gutters, sulphate of iron, i. e., copperas, is recommended.

"This may be used by sprinkling a small amount of dry copperas in the gutter or drain, and immediately after distributing, adding a small amount of crude carbolic acid.

"Three pounds of copperas dissolved in an ordinary wooden bucketful of water, with the addition of half a pint of crude carbolic acid, is a convenient mixture for disinfecting drains, gutters, etc.

"Copperas is a cheap disinfectant, and can be purchased at from two to three cents per pound at wholesale. Carbolic acid, though not cheap, plays an important part in disinfection and deodorization of foul, smelling gutters, and needs to be used only in moderate quantity.

"A very weak solution of copperas, in water, used once a day, and in very hot weather twice a day, will entirely destroy the unpleasant amoniacal ordors arising in stables, and if used with ordinary care will not affect, injuriously, the feet of animals kept in them.

"These disinfectants can be procured from any druggist, at small cost, and should be kept in every house ready for use.

"The preparations of iron chemically destroy the foul odors of gutters, privies, etc. Carbolic acid hinders the decomposition of animal matters and the formation of sulphur compounds in them, and is inimical to the fermentation process, and to fungoid life and growth in general.

"The use of lime as a general disinfectant is not recommended. Matters in a state of discomposition are ordinarily alkaline, and the use of acids and acid salts is therefore desirable.

"The Board of Health consider the destruction of these foul odors from gutters and privies as a mattter of the *greatest sanitary importance*, and urges upon every householder immediately to use the means herein recommended to free himself and family from the noxious influence of these ill smelling, unwholesome exhalations.

"C. B. WHITE, M. D.,
President Board of Health, State of Louisiana.

"S. C. RUSSELL, M. D.,
Secretary of Board."

OVERFLOW.

During the spring months, the waters of the Mississippi river, flowing through the crevasse at Bonnet Carré, found their way into Lake Pontchartrain.

About the first of June, occurred a long succession of strong southeast winds, which interfered with the outflow of the waters of Lake Pontchartrain, unusually augmented by the break in the river levee. The result of this combination of circumstances, was an extraordinary altitude of the waters of the lake and of the navigation canals, leading thence to the heart of the city. At this time, June 3d, occurred a break in the banks of the New Canal, as a result of which, that portion of the First and Second Districts lying between the New and Old Canals, and between Basin street and the Metairie Ridge, was submerged. After some days the water became entirely stagnant, and disagreeable odors were given off.

To remedy this state of matters, and hoping possibly, to do something to prevent future ill-health. instructions were given to disinfect and deodorize with carbolic acid and salts of iron. The details of the work will be found in the reports of Drs. Clark and Albers.

The overflowed region enjoyed a remarkable exemption from malarial fevers during the remainder of the year. These facts, also, are given in full, in the before mentioned reports.

The observations of Dr. Bowditch, of Massachusetts, and the contemporaneous and independent conclusions of Dr. Simon, Medical Officer of Great Britain, in regard to the connection between the prevalence of moisture and of phthisis, suggest whether the very great number of deaths by phthisis pulmonalis in New Orleans, may not be in some degree dependent on the dampness of our dwellings, occasioned by the abundance of subsoil water, its nearness to the surface, the bad methods of construction of houses, by which brick walls both carry water up from the ground, and condense it at every change of weather from the atmosphere, and the state of the floors of buildings, below which is often found a damp, unventilated space, in which standing water is of by no means unfrequent occurrence. The lower apartments of all such houses are damp, have an unpleasant, musty smell, and present fungoid growths of mould, localizing themselves upon carpets, clothing, and similar materials.

It is designed during the coming year to investigate this subject, but in so moving a population, as that of this city, it is doubtful if there is sufficient permanency of residence to accumulate any statistics of value.

The examinations of deaths by fevers evince the ill effects upon viability of this standing water under houses. That dampness, and darkness, and imperfect ventilation actually and permanently affect the health of even adults, long exposed to them, and greatly increase the death rate of all young children, is a fact well established.

In view of this, the Board of Health has, during the past year, inaugurated the policy of declaring such low lots nuisances, and ordering the nuisance to be abated by filling.

Most of the orders from the Board of Health to that effect have been complied with. It has been the effort of the Board to make this permanent sanitary improvement as little burdensome as possible, and the low lots designated for filling have been those most injurious to health by their own condition, or by reason of proximity to dense population.

The general inspection of the year showed a considerable number of premises without privy vaults. One such place was found occupied by sixteen persons. This place had neither cistern nor hydrant, consequently no water supply.

Many hundreds of privy vaults were found either out of repair, or of original bad construction, saturating with unhealthy matters the soil about them, allowing their fetid contents to flow into the yards of the premises on which they were situated, often into the yards of adjoining houses, and many times into alleys and streets.

Orders to rebuild such vaults within fifteen days have been issued in all such cases, and almost in all instances the nuisance has been promptly abated.

Admitting that epidemics are inevitable, those familiar with vital statistics are aware, that the chief mortality of all city communities arises from diseases, whose causes, though preventable, act continuously through long periods of time.

It is this hygienic fact which has caused the Board of Health to take these measures, which will result in the *permanent sani-*

tary benefit of the community. Although in this overtaxed people the cost can be illy borne, yet, even here, the outlay is well made, for unnecessary sickness is the most expensive of all luxuries.

It is well to construct railroads to develop the material interests of New Orleans, but it is to be remembered, that railroads will not bring people to a sickly city, nor will they bring orders and carry out the goods therefor, if with them come the seeds of infective disease.

The commercial prosperity, and future rapid advance of New Orleans, depend very greatly upon the extent to which it can be made healthful.

It is proposed by the Board of Health to carry forward these sanitary measures during the coming year. It is believed that could similar advance be made in the management of the streets and drainage canals, and the advance be maintained *pari passu*, in five years the list of city mortality would show a marked diminution.

STREETS, STREET GUTTERS AND DRAINAGE CANALS.

These have received continuous attention from the Board of Health.

It is evident that their cleanly, or unclean condition must be an important factor, in the problem of the general health of the city.

Taking the city as a whole, and the whole course of the year, the streets have been generally in a bad condition, and the drainage canals have been continuously foul and offensive.

In the Third District, however, Dr. Perry reports, that since Mr. Kinsella has taken charge of the street department of that District, "all garbage and street scrapings have been promptly removed; streets of the District, in general, kept in good order, and all complaints of nuisances from the Health office, coming properly under the control of the Department of Streets, have been immediately attended to."

The Board of Health, with the view of removing, as far as practicable, those causes of ill-health, which might result from

the bad condition of the streets and canals, if they were permitted to remain in this disease-generating condition, addressed to the Honorable Board of City Administrators, on the 24th of April, the communication which follows :

As will be perceived, its recommendations are confined to temporary measures for the summer, save the suggestions in regard to the mode of construction of a certain class of street-gutters, and the flushing of the draining canals, recommendations which, if carried out, would be of great and permanent sanitary benefit.

It is to be hoped that they may yet find favor with those who have charge of street grading and construction, and management of sewage canals.

The experience and opinions of Mr. Bayley, mentioned in the communication to the Administrators, are of very great practical value. They will be found in the appendix to this report, forming part of a subsequent communication to the City Administrators, on the subject of drainage.

The sanitary value of the system of flushing these sewage canals, by pure water, can scarcely be overrated.

This communication of April 14th, however, on being sent to the Council, was not read or printed, but referred to the Administrator of Improvements, who never made any report upon the matter, and certainly adopted none of its recommendations.

OFFICE, BOARD OF HEALTH,
STATE OF LOUISIANA,
New Orleans, April 24, 1871.

Honorable Board of City Administrators :

SIRS: The Board of Health respectfully invite your attention to certain considerations connected with the maintenance of good health in this city during the approaching summer.

At the present time a thorough general inspection of all houses, lots and private alleys is going forward, during the progress of which, as far as practicable, all matters prejudicial to health will be removed from them, and, by the first of June, the more densely inhabited portions of the city, will be put in a good sanitary condition.

To effect complete cleanliness of the city, and maintain it during the summer, it is desirable—

First. That the facilities for removing offal from residences, should be temporarily so increased, that this class of substances may be taken away at an early hour, every day, from the streets.

Second. That street scrapings should be immediately removed.

Third. That the gutters of streets parallel with the river, wherever the facilities exist, should be washed every day. By means of a hose attached to the hydrant, where one exists, the gutters of every parallel street can be thoroughly, expeditiously and cheaply cleaned.

Fourth. Where the Water Works do not supply water, as in the Fourth District, the gutters during the summer, should if possible, be flushed from the river once a day.

The Underwriters' boat, the "Tyler," will do this in an effectual manner.

The Board of Health is informed by the President of the Board of Underwriters, that the services of the powerful pumps of this boat can be secured, and that a liberal contract will be made with the city for this purpose, charging by the hour, for the time actually employed.

On the streets perpendicular to the river, where hydrants exist, if it be impracticable to furnish a continued stream through the gutters, at least once a day, several plugs nearest the river should be opened at the same time, and allowed to run for not less than thirty (30) minutes, in order, as the least effect, to carry off all standing water to the great draining ditches, replacing it with fresh, inodorous water. No doubt, a very considerable portion of dark, semi-liquid, offensive matter would be got rid of at the same time.

The offensive and unwholesome condition of the draining canals in the rear of the city, has been maintained for several years with only the occasional and temporary relief afforded by heavy rains. It having come to the knowledge of the Board, through Mr. McCullough, Superintendent of the Gas Works, that some years since a plan to remedy the stench and unhealthy condition of these canals had been devised and successfully applied by G. W. M. Bayley, Esq., Civil Engineer, the

President of this Board conferred with him on the subject, and at the request of the Board, Mr. Bayley furnished a communication on the subject, which may be seen on page 5; communication on "Drainage and Draining Canals."

In urging this scheme of purifying the canals, by flushing, the Board of Health, does not maintain that because an odor is disagreeable, it is of consequence, noxious. But many of the gases of ill odor, given off from decaying animal, and vegetable matter, are known to be poisons, in some cases deadly, and in all cases hurtful to health. Indeed, common sense seems to teach, that the odors disagreeable to the sense of smell, are probably either immediately or remotely hurtful. Certainly, nothing will be lost to the people of the city, by the utmost freedom from foul odors, that the united effort of police and sanitary authorities can secure.

The Board of Health desire to call attention to the fact, that a street gutter, to be healthy, should be in a condition, one of two extremes, viz: Absolutely dry, or drenched with water, as decomposition goes on most rapidly in the presence of air, moisture or warmth—three circumstances which in this climate the partially wet gutter furnishes.

The best condition for the gutters running from the river toward the swamp, is a continued stream of water; and for gutters of streets parallel with the river, absolute dryness.

To secure this condition of these last named street gutters, a change of construction is necessary. A moment's consideration will show that the gutters on streets parallel with the river, for the purpose of carrying off rain fall, may be made more shallow, than those of streets perpendicular to the river. The gutters of streets parallel to the river, receive and transmit only the water falling upon half a block, while the perpendicular gutters, receive the water of half the blocks that border thereon, and all poured into them from streets parallel to the river.

The beds of the gutters, at the centre of the blocks of streets parallel to the river, should be elevated to four inches more than at present, sufficient descent be given to secure a free movement of fluids to the intersection of the gutters at the

corner; at this point the descent should be made sharply—three to four inches in the distance of say, ten to fifteen inches.

A gutter bed, laid in this manner, after being washed or cleaned, would in dry weather, lose all moisture in a short time, and be in an excellent condition of cleanliness, and in one favorable to health.

This construction, would avoid what now exists at most street corners, when water is running from the river towards the swamp, a stagnant, unsightly, fetid, unhealthy strip of water, extending up and down on both sides of the streets to a distance varying from ten (10) to forty (40) feet.

The gutters immediately in front of the Mechanics' Institute, one of the last laid pavements in the city, illustrate this bad principle of construction, as they are strips of almost stagnant water from one end to the other, and last week, during the hot days, green scum was growing upon their surface nearly in front of the Institute.

The careful consideration of the Administrators is invited to the principle of construction named, so that in pavements hereafter laid, the evils of the present system ofgrading of gutters may be avoided.

It is deemed a matter bearing directly, and permanently, on the cleanliness and good looks of the city, and the health and comfort of the inhabitants.

These various suggestions are made for the consideration of the Hon. Board of Administratiors, believing that the expense involved will be small in comparison with the advantages to be secured to the community.

C. B. WHITE. M. D.
President Board of Health, State of Louisiana.

August, 27th, a communication from Dr. F. B. Albers urging the necessity of a free supply of water from the hydrants, for cleaning the gutters, was received by the Board, and forwarded to the Hon. Board of City Administrators, concurring in the request. This was promptly acceded to, and during the remainder of the hot months, the supply of water was ample.

August, 26th, an extended and very valuable report on the method of cleaning the streets, as at present practiced, was

made to the Board of Health, by Dr. Alfred W. Perry. This was forwarded to the City Administrators, stating their full concurrence, in the views expressed. As the method condemned, was in no degree modified by the communication, on the 23d of September, the Board of Health addressed to the City Administrators, the protest which follows:

PROTEST BY BOARD OF HEALTH.

OFFICE BOARD OF HEALTH, STATE OF LOUISIANA,
New Orleans, Sept. 23d, 1871.

At a meeting of the Board of Health, held September 22d, 1871, it was

Resolved, That the practice adopted by the Department of Improvements, of removing the mud and filth from the street gutters, and throwing it upon the centre of the streets is highly reprehensible in a sanitary point of view.

The filth thus removed is either washed into the gutter, to be repeatedly removed and washed in again, or becomes a component part of the roadway.

If repeatedly removed and washed back, it gives forth noisome gases rapidly and continuously; if it become a part of the roadway, it slowly decomposes and gives off nauseous odors

The waste material incident to the household and other necessities of a large population, furnishes a constant and free supply of organic matter to the gutter, which, being continually thrown up, the evil is thus made permanent, and the roadway remains largely composed of organic matter in a condition of perpetual decomposition.

This state of the streets is exceedingly unfavorable to the health of the community.

If the filth from the gutters cannot be immediately removed, it should remain entirely undisturbed, and be trusted to the action of rains for a remedy.

The practice alluded to is improper from economic considerations. As is well known, a solid and good roadway can not be made from material so largely composed of decaying organic matter.

Also, the money paid for the labor employed in this useless and unhealthy mode of treating a street and its gutters, would in a few years pave the street with square blocks.

The street scrapings from gutters should be removed to the rear of the city. The organic matters would speedily be oxidised and disappear, leaving earth suitable for filling. The gases evolved would, during the period of greatest danger to the public health, be blown away from the city by southerly winds.

Any depression of the streets below the proper grade by this mode of procedure, could be filled by batture sand, against which no sanitary objection lies.

In conclusion the Board of Health urge the Honorable Administrators to totally change the plan of street management, and strongly protest that the present mode of cleaning gutters and filling streets with foul scrapings, is useless, expensive and exceedingly detrimental to the public health.

C. B. WHITE,
President Board of Health.

The report of Dr. Perry, just referred to, will be found in the Appentix to the report, page

On the 20th of October, after carefully considering the subject, the Board of Health addressed to the Honorable Mayor and Administrators of the city, some recommendations connected with the drainage and draining canals of that portion of the city, lying between the New and Old Navigation Canals, and between Claiborne street and the Metairie Ridge. To secure consideration, this was printed and laid before them in pamphlet form. It will be found in full, at the close of this report.

At the same meeting at which this communication was received by the Honorable City Administrators, a plan, originating with the City Surveyor, on the same subject, was laid before them by the Administrator of Improvements.

The essential points of difference in the two plans were, that on the plan of the Administrator of Improvements, an entirely new, wide and deep canal was to be dug along the "New Canal" from Galvez to Hagan Avenue; the retention of the present draining canal on Claiborne street, and a new

draining canal along the "Old Canal" from Claiborne to Galvez. While the plan of the Board of Health, extended the street gutters on Canal, Customhouse, Bienville, Conti, St. Louis and Toulouse streets to the Galvez Canal, deepened and widened Galvez Canal, and widened the draining ditch already existing along the "Old Canal" from Galvez to Hagan Avenue.

Both plans contemplate the filling of the Canal street sewer.

Against the plan proposed by the Board of Health is urged—

First. The expense of grading the gutters from Claiborne to Galvez street.

Second. The greater expense of widening and deeping Galvez Canal, and widening the already existing draining ditch along the "Old Canal," from Galvez to the Hagan Avenue draining machine, as compared with the new draining canal along the "New Canal." This expense, was assumed to be greater, because this canal was to be dug by dredging machines, and the other by hand. Granting this unnecessary conclusion, the improvement to the property along Claiborne street by the removal of its draining ditch, the avoidance by the city of the expense of keeping up the sides of the Claiborne street ditch by bricks or timber, an expense which must be very soon incurred again, and the incidental advantage to twenty-five blocks of houses, of having water through their street gutters for cleanliness and for use in case of fires, might be considered an offset to the greater expense.

In addition to this, the draining ditch of the Surveyor's plan, to be dug along the "Old Canal" from Claiborne to Galvez streets, will run through a densely populated region, and much expropriation, of somewhat valuable property, will be the necessary and expensive result. The plan of the Board of Health does not require this expense.

The large canal to be dug along the New Canal will also require the expropriation of much property, while the location proposed by the Board of Health for the canal, to carry off the water and sewage received by the Galvez Canal, is through a public street, and in the whole distance but a single row of four small cottages exists.

Thus, the difference of expense is not in favor of the plan originated by the City Surveyor, and offered by the honorable Administrator of Improvements.

Another element of expense, to say nothing of it in an engineering point of view, is the fact that the plan of the surveyor proposes to carry the water of a portion of Galvez Canal in a direction *away from its final destination;* a direction *in opposition* to the *natural drainage* of the area referred to. This implies the expense of *digging* and *maintaining* a greater depth of canal, to secure perfect drainage, than would be otherwise necessary. The difficulty of keeping the bottom of deep canals down to proper grade and their consequent expense, is well known.

Any slight difference in the expense of the two plans of drainage should not, however, be allowed to decide against the one which offers marked sanitary advantages.

Other things being equal, it is evidently a great hygienic benefit to have the *least possible sewer surface*, to annoy the eye with its offensive appearance, the nose with its nauseous odors, and to poison the blood with its dangerous exhalations.

The plan originated by the City Surveyor *retains five* squares of *sewer* on Claiborne street, digs *five* more along the "Old Canal," *thirteen* along the "New Canal," and converts Hagan Avenue Canal into *ten* (10) additional squares of sewer—a total of *thirty-three* (33) *squares*, *besides that necessary* on the plan proposed by the Board of Health.

On the plan recommended by this body, it was easy, by putting gates into the Broad Street Canal, near the Old Canal, and into Hagan Avenue Canal, one or two blocks to the northward of Canal street, to prevent the sewage of the city from entering into and contaminating the system of draining canals. Therefore, by pumping out daily the whole length of Galvez canal, and the canal leading from Galvez, along the Old Canal to the drainage machine, and then immediately filling the canals with fresh water from the New Canal, the whole nuisance of our fetid draining canals and sewers would be abated.

By this arrangement of sewer, it would be possible to treat

the rainfall and sewage of the built up portion of the city, separately from the rainfall of the plateau lying back of Galvez street. Were the rainfall back of Galvez street, kept out of the main sewer proposed by the Board of Health, and were the pumps to be used in time of storm, to relieve the city exclusively, the great annoyance to the rear portion of the city from overflow would be quickly remedied, and when this was done the machines could take off the water to the rear of Galvez street.

A great advantage claimed for the new, wide and deep canal along the New Canal, is that it will act as a reservoir for the rainfall of that portion of the First District, between Canal street and the New Basin. The real difficulty in dealing with rainfall in Julia, Girod, Lafayette and Poydras streets, lies much nearer the river than this. The true cause is the obstruction to the flow of water, caused by the New Basin, and the Girod street cemetery, and the total inadequacy of the other street gutters for waterflow, by reason of narrowness.

A reservoir canal, without a strong current through it, will be a stagnant cesspool, which will fill up from the bottom and by foul deposits, every year, and its only value be to keep a dredge boat earning money.

It is believed that the reservoir principle, extended to any considerable degree, is an improper one. That the true system is moderately wide and deep canals, flushing gates, and powerful draining machines, so that a rapid current can be caused through them, and thus, instead of large bodies of water being thrown out slowly from reservoirs, the water be thrown out as rapidly as it arrives.

As large a quantity of water can be passed through small canals, at the rate of three miles an hour, as through very much larger ones, at one-half mile per hour, and the washing effects of rapid currents are most desirable.

It is hoped that the City Administrators may yet take into favorable consideration the general idea of the management of the rainfall and sewage separately; of the management of the rainfall of the built up portion of the city, separately from that of the region back of Galvez street; of the plan by which

thirty-three (33) additional linear squares of sewer are avoided, and the system of narrow ditches and rapid currents, such ditches afterward to be filled with fresh, odorless water, as against wide reservoir canals, with slow currents, inevitably to become filthy, nauseous, abhorrent cesspools.

CONCLUSION.

The Board of Health request that pecuniary relief may be afforded it to the amount of sixty-five hundred dollars, for the following purposes:

To repair buildings at Quarantine	$2,500
Deficit of present year	2,000
Scientific instruments already ordered, microscope, spectrum microscope, cabinet illustrative, etc	1,000
Scientific books and journals	500
Additional instruments needed	500
Total,	$6,500

The deficit this year arose from loss on warrants, expenses for scientific books, office rents and expenses of Sanitary Inspectors, etc., some unexpected expenses connected with the return of a vessel to quarantine, and the fact of no fees being exacted at the Rigolets Station, this having been a charge to the treasury of the Board of nineteen hundred dollars, instead of being, as heretofore, self-supporting.

Respectfully submitted,
C. B. WHITE, M. D.,
President Board of Health, State of Louisiana.

Report of Sanitary Inspector, First District.

JULIUS S. CLARK, M. D.

OFFICE, SANITARY INSPECTOR, FIRST DISTRICT,
New Orleans, La., December 31, 1871.

C. B. WHITE, M. D., President Board of Health:

Sir—I have the honor to submit the following summary report of the operations of this office, as connected with the sanitary condition of the First District of this city for the year 1871:

The duties of Sanitary Inspector of this, the largest district of New Orleans (population 51,845), are multifarious, as specified by ordinances, beside the matters from time to time referred to him for investigation and report, which make the position anything but a sinecure.

The burden of these official duties could only have been borne, and the amount of work accomplished by such efficient aids as Messrs. Wooddy, Brennan and Nicoll.

These officers have been faithful and unremitting in their work, which during the great overflow of the spring, and the existence of yellow fever of the summer required their services night and day, for which they are in justice entitled to additional compensation.

Previous to April 20th, this district was under the charge of Dr. Jules A. Mathieu.

INSPECTIONS.

The regular annual, or house to house inspection, made by the Sanitary Police during May and June, 1871, gives the following data:

Number of premises	11,814
" " persons	51,845
" " premises with hydrants	2,224
" " " " cisterns	6,555
" " " " hydrants and cisterns	1,030
" " frame houses	6,982
" " brick "	3,871
" " iron "	8

Number of vacant lots..... 501
" " houses..... 1,271
" " cows..... 135
" " hogs (all removed outside pound limits)..... 26

This comprises all of the First Sanitary District, and which is all of the First District, excepting so much as lies beyond the Broad Street Canal.

An additional force of eight men was on duty at this office during these two months.

Table of Aggregate Work.

NATURE OF	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Inspections made	461	305	429	2138	9543	79	51	848	156	511	434	437	15392
Reinspections made	200	87	89	227	1829	1819	800	400	200	420	372	228	6671
Nuisances found requiring abatement	...	...	...	502	2208	37	115	162	78	221	158	155	3636
Notices to empty vaults	129	44	41	352	2017	1179	125	105	36	88	95	82	4293
" rebuild vaults	9	...	8	....	23	24	4	...	2	...	2	...	72
" repair vaults	...	5	2	2	45	41	5	5	4	...	3	...	112
" disinfect v'lts	...	4	...	....	32	25	5	19	30	70	28	...	213
" clean premises	15	...	9	....	45	58	22	16	20	81	18	43	327
" fill lots	5	5	2	19	24	26	6	14	2	10	8	10	131
" drain lots	...	...	...	....	....	1	4	2	2	3	1	1	14
" remove hogs	2	1	...	....	4	4	2	6	1	7	2	1	30
" supply water	...	...	...	13	72	36	6	7	7	2	1	1	145
" repair houses, roofs, etc	...	...	...	8	18	7	1	2	3	1	3	...	42
Notices to repair, raise, and drain alleys	...	...	...	....	....	....	2	5	7	3	4	...	21
Dangerous buildings reported	...	...	...	....	2	3	1	2	1	1	...	1	11
Dangerous fences rep'td	...	...	...	....	....	....	4	...	...	...	...	...	4
Offensive trades	...	...	...	....	....	....	...	3	...	...	...	...	3
Premises disinfected	...	...	...	....	....	202	...	301	451	61	25	...	1040
" fumigated	8	1	...	1	....	....	25	20	3	10	...	...	68
Squares disinfected for overflow	...	...	...	....	....	114	...	...	...	...	...	...	114
Squares disinfected for yellow fever	...	...	...	....	....	....	...	120	92	...	...	...	212
Coal Oil accidents reported	6	...	...	....	2	2	2	...	1	1	1	3	18
Cases of small pox rep'd	7	1	...	1	....	....	...	...	1	...	...	...	10
Cases of yellow fever reported	...	...	...	....	....	....	...	...	5	14	3	1	23
Specimens of milk from carts tested for purity	6	10	10	6	5	10	6	6	...	...	...	...	59
Parties reported for non-compliance	...	...	...	....	....	....	5	20	3	10	...	...	58
Daily water guage	...	...	...	...	21	....	30	31	30	31	30	31	235

LOT FILLING, ETC.

It will be seen that very considerable attention has been taken in bringing to the consideration of the Board many vacant and unoccupied lots, which the owners have been obliged to fill up and drain.

Possibly there is no one thing relating to, and affecting the health of the city, that is more deserving of attention than this. Even in the more densely populated parts of the town there are many vacant lots, that, during a portion of the year are covered with water, and upon which grow a luxuriant vegetation. These are found to be the receptacle of filth of all kinds, which, upon the recession or drying up of the water, undergoing fermentation and decay, give off noisome and malarious emanations.

Upon such lots houses are built, and the owners, with less regard to the conditions of health, than appearances and convenience, proceed to fill the same, excepting so much as is covered with the dwelling, thereby creating an artificial pond, the evils of which are always with them.

It is a fact incontrovertible, that wherein occur cases of congestive, remittent, intermittent and billious fevers, an undue proportion are found in premises so located.

If the City Council, or other competent authority, would enact an ordinance requiring all building to be only prosecuted upon obtaining a permit, and that to be conditional to salutary rules as to grading, filling, draining, etc., this object could be effected, and facts valuable could be elicited.

HOUSES UNFIT FOR HABITATION.

The number of tenement houses unfit for human habitations by reason of decay, leaky roofs, dangerous galleries and stairways, insufficient water supply, etc., which the many, urged by necessity and the consideration of lesser rents, occupy, are numerous.

Such houses are generally owned by wealthy landlords, who only respect the demands of the law. Nearly all of these houses are old and decayed, and in a great majority of cases

are one-story, the floor resting upon the humid soil, often below the level of the streets and river.

In the rear of the city these houses are nearly on a sea level, no air being admitted underneath. Infiltrations from the river, gutters and swamps, generate perennial crops of *fungi*, *infusoria*, mildew and mould, and even the mushroom flourishes in and around these habitations of man.

Let the sanitarian keep these facts before the Legislature and Grand Jury until these laboratories of deathly gas are no more.

To effect these results property owners should be obliged to fill lots, both under and around their residence, to a higher level than the streets, with a declination to the banquettes, and hereafter, at least, all houses should be raised above the ground sufficiently to admit of a free circulation of air.

STREETS.

With a little care and well directed efforts, the streets of this district could be kept in a cleanly condition. Had it not been for the rains which seem to have been providentially frequent during the summer, our thoroughfares would have been insufferable.

Few cities have such facilities for economical and efficient policing as New Orleans, and yet the opportunity is not embraced.

The great Mississippi that flows by our feet, or rather during a portion of the year, rolls over our heads, could, with a schoolboy's mechanics, be made subordinate to this purpose. More sluices and fire plugs, properly distributed and those already established *used*, would accomplish this object.

The natural plane on which New Orleans is built, has sufficient inclination and prolongation towards the lake to give a strong current to the water from the river as far as the draining machines. This flushing is only necessary at times, when the drainage canals are comparatively empty, and would not task their capacity whilst it would be otherwise beneficial.

YELLOW FEVER.

The first case of fever in this district was at 433 Tchoupitoulas street, September 9th, and the last at 347 Dryades street, December 29th. Wherever it made its appearance the dwelling was fumigated alternately with sulphurous acid and chlorine gas, and the adjoining premises and streets disinfected with carbolic acid, which resulted *ab hoc* or *post hoc*, with a single exception, in its appearance in no second case in the same premises or immediate vicinity for several weeks. This was a noticeable fact.

The use of disinfectants seemed to arrest or suppress for an indefinite time the conditions of disease.

Let us suggest this postulate: Suppose this disinfection had been repeated again and again for weeks, would these germs, if germs they be, have propagated?

The seeds of plants taken from Egyptian mummies contain the vital principle after the lapse of thousands of years, and will grow when the proper conditions shall be present.

But I will leave theories—

> "To many far older than me,
> To many far wiser than me."

SMALL POX—VACCINATION.

There have been but a few cases of small pox during the year, and prompt measures were taken to isolate those infected and otherwise arrest the spread of the contagion.

As the public have as much right to ask protection from small pox as any other evil, it seems that there should be some protective measure of law, enforced by a system of registration, whereby all should become vaccinated.

The pupils of the public schools are now the only class whose protection is assured by existing laws.

The prevalence of this epidemic in northern cities, at present, makes measures for compelling vaccination opportune and important.

In visiting the schools, I find the pupils unprotected limited almost exclusively to new admissions.

Of the three thousand eight hundred and twelve pupils present at examination, three hundred and twenty-one, or 8.5 per cent., were wholly or partially unprotected. These are being vaccinated at this date.

PUBLIC URINALS.

I would respectfully representt o your honorable body, the sanitary necessity of public urinals, at convenient intervals, on the great thoroughfares, and along the levee.

As long as this convenience is witheld from the public, all City and Board of Health ordinances, relating to this special nuisance, will receive no respect, and "*commit no nuisance here*" will continue profitable to the painter and painful to the promenader.

DRINKING FOUNTAINS, BATHS, ETC.

Citizens and strangers are continually passing along our streets, who need, particularly during the heated term, some wholesome beverage, and who would prefer, on principle, the Mississippi water, to any beverage in the vicinity, but no public facilities are afforded for man, and but few for beast.

No less important, in a sanitary point, is the demand for cheap public baths. Bath houses could be erected along the river bank, and by exacting a small sum from each bather, the poorest could avail themselves of a cool, refreshing bath, and the city treasury be reimbursed for all outlay.

That the privilege would be appreciated by the people, it is only necessary to refer to the success of the same in Boston, where baths are less required by climatic conditions.

WATER GUAGE.

May 10th a covered well was selected, into which no surface water ran, and daily observations made to ascertain if the water was affected by the stage of the Mississippi, and to afford data for the philosophical sanitarian:

May.	Average	distance	from	surface	of	ground,	$11\frac{3}{4}$	inches.
June.	"	"	"	"	"	"	$6\frac{1}{2}$	"
July.	"	"	"	"	"	"	$13\frac{1}{3}$	"
Aug.	"	"	"	"	"	"	$8\frac{2}{3}$	"
Sept.	"	"	"	"	"	"	$11\frac{1}{2}$	"
Oct.	"	"	"	"	"	"	$8\frac{2}{3}$	"
Nov.	"	"	"	"	"	"	4	"
Dec.	"	"	"	"	"	"	8 3-5	"
						Average,	9 12	"

MILK.

To complete the experiments begun July, 1870, to ascertain the quality of pure milk, I procured specimens from the dairies for the first six months of the present year. With the instrument used to determine the specific gravity, pure Orange county milk is marked 20°.

Averages for	Number of Specimens.	Test by Galactometer.	Number of Specimens.	Percentage of Cream.
July	27	16-25	27	8-29
August	35	17-22	35	8-59
September	26	17-29	25	10-82
October	15	16-73	15	9-27
November	11	16-02	11	15-09
December	35	17-39	30	13-11
January	18	20-33	18	17-16
February	18	16-08	18	14-16
March	18	18-75	18	10-05
April	18	15-25	18	10-25
May	15	16-06	15	11- 6
June	12	17-87	12	14- 5
Total of avr'gs.	.....	206-37	.....	143-36
Grand average.	245	17-19	239	11-94

VIDANGEURS.

On several occasions during the month of June and July, efforts were made to ascertain if the night-scavengers were performing their duties in compliance with Sec. 9, S. Ordinance, with most satisfactory results.

COAL OIL.

Details of deaths and cases by fires, consequent to the use of these oils, are daily put before the people, yet the carnival goes on. Now it is servant using this "safe oil" to brighten her fire who suffers; again it is the bursting of a lamp in the silent vigils of the sick room, by which perish its inmates.

The great majority of these oils, which are upon the markets, are simply mixtures of two or more of the lighter products of petroleum, i. e., naptha, benzine, etc., which under certain circumstances may be exposed to tests that will catch the fancy of the people unstudied in the philosophy of explosions.

Lives are daily lost, and the irresistable logic of facts, "will not down" to experiments, arguments and theories.

Let the people be warned.

OVERFLOW.

The following report, made at the time, will show what efforts were made to counteract any evil results of the overflow:

OFFICE SANITARY INSPECTOR, FIRST DISTRICT,
New Orleans, June 23, 1871.

Dr. C. B. WHITE, President Board of Health:

Sir—I have the honor to submit the following report of the operations of this office in connection with the late overflow:

The water with which this portion of the city was submerged, was from the drainage canal, where was the collected filth of the city, which, owing to the high stage of the backwater, had not been forced out for several days previously. Added to this was the contents of every sink, cesspool, stable and gutter, with garbage from the dumping ground, dead domestic animals, etc., etc.

The water, air and soil thus poisoned, necessarily produced a sickening smell, and in compliance with your instructions, at the first indication of the receding flood a thorough and systematic disinfection was undertaken.

The plan adopted, which proved to be economical and satisfactory, was as follows:

I begun by causing the distribution of the material in the gutters of the streets perpendicular to Canal street and the New Basin, as the water of these streets had to pass off through the parallel streets, which obviated the necessity of any application to the latter. In this manner, each street, from Dryades to Broad streets, was taken.

A hogshead of the disinfectant was mounted on a dray, to which was attached a hose which, in the hands of a man, was conducted to the gutters.

The following number of gallons was distributed to the several streets:

	Carbolic Acid.	Perchloride Iron.
Dryades	50 gallons.	9 gallons.
Rampart	100 "	0 "
Basin	136 "	0 "
Franklin	125 "	0 "

Liberty	125	Gallons.	0	Gallons.
Marais	100	"	0	"
Villere	100	"	5	"
Magnolia, below Willow	250	"	10	"
Claiborne	400	"	25	"
Derbigny	100	"	5	"
Roman	120	"	6	"
Prieur	100	"	5	"
Johnson	80	"	5	"
Galvez	200	"	10	"
Miro and Tonti	160	"	10	"
Rocheblave and Dolhonde	100	"	10	"
Broad	100	"	5	"

In addition to the above, every vacant lot, alley, and the low portions of the neutral ground of Claiborne street, were visited by the Sanitary Police, with buckets of the disinfectant, and seven hundred and fifty gallons of the carbolic acid, and 40 gallons of perchloride of iron were distributed among the occupants of houses beyond Claiborne, in quantities of from one to two gallons each, to be distributed by themselves.

How potent this may be as a destroyer of morbific miasmas is not so positively demonstrated, although eminently satisfactory to those who have given the matter study. As a deodorizer its effects were almost magical, it being so diffusive that when thrown into the water in one locality, its presence was quickly discovered at a distance, by both sight and smell.

The inhabitants of this district heartily appreciated our efforts, which was the more encouraging as it is not always so.

Total number of gallons of carbolic acid, distributed 2960, of perchloride of iron, 145 gallons.

I am, very respectfully,

Your obedient servant,

JULIUS S. CLARK, M. D.,

Sanitary Inspector, First District.

Comparative Table of Mortality by Fevers in the Overflowed District for the corresponding months of 1870 *and* 1871, *exclusive of Charity Hospital and the Hotel Dieu.*

FEVERS.	1870.									1871.							
	May.	June.	July.	August.	September.	October.	November.	December.	Total.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Malarial	1	..	..	1	..	..	2	1	5	..	2	1	..	..	2	..	2	7
Yellow	..	..	..	..	3	6	..	..	9	..	..	..	..	..	..	1	..	1
Typhoid	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	1	1
Congestive	4	1	1	3	..	..	..	..	9	..	1	..	..	2	1	..	..	4
Pernicious	..	..	..	..	..	1	..	..	1	..	..	..	..	1	..	..	..	1
Remittent	2	3	..	..	..	1	..	..	6	..	2	..	..	..	2	1	..	5
Intermittent	..	..	1	..	..	1	2	..	4	..	..	..	2	..	1	..	..	3
Bilious	..	..	..	..	1	..	..	..	1	..	1	..	..	..	..	..	..	1
Grand total									..36	Grand Total								..23

Thus it will be seen that the mortality from fevers was *less*, for the months subsequent to the overflow, than for corresponding months of 1870.

CONCLUSIONS.

At the expense of repetition, I call attention to certain requirements that seem to me all important.

Under ground drainage is hardly a physical possibility in New Orleans, and wherever practicable is generally found mischievious.

Surface drainage is easy and economical, and with the swamp zone cleared, ditched and drained, a powerful sun would evaporate the soil to dryness and convert mosquito-ponds and alligator-haunts to pasturage.

To these improvements, add the square-block pavement, to be laid down upon those streets that now have the cobble stone, which collects and retains filth, and also upon those that are filled and graded with the accumulation of sewers and kitchens.

New Orleans should stand at the head of all large cities in this country in the matter of health.

Its wide streets and broad avenues afford the freest circulation of air and its residences are spacious and airy.

The system of tenements of four and five stories, where hundreds of human beings are huddled together, that characterize most large cities, is here unknown.

Then what we want is *elevation* and *dryness*, *drainage*, and the *free circulation of air in and under houses.*

Very respectfully,

JULIUS. S. CLARK,

Honorable Board of Health. *Sanitary Inspector.*

Report of Sanitary Inspector, Second District.

F. B. ALBERS, M. D.

OFFICE SANITARY INSPECTOR SECOND DISTRICT,
NEW ORLEANS, December 31st, 1871.

To the Hon. President of the Board of Health, State of Louisiana.

Sir—I have the honor to place before you, the following report of the operations of this office, and of the sanitary condition of the Second District of the city under my direction during the present year.

At the commencement of the year, I had detailed to my assistance as sanitary police, three members of the Metropolitan Police force, to each of whom was assigned one of the three wards of the Second District for inspection. This inspection consisted in making a report of each house, or dwelling, stating

1st, Street and number of each house.
2nd, Name of owner.
3rd, Name of occupant.
4th, Number of persons.
5th, Business.
6th, Water supply.
7th, Built of brick or wood.
8th, Condition of floor and roof.
9th, Condition of the lots.
10th, Banquettes.
11th, Number of animals kept.
12th, Condition of water closets.

A correct account of this was kept in regular books, which are herewith returned to the Central office for reference, and the work was accomplished in five months, with the following main results:

WARDS.	Number of Houses.	Inhabitants.	Horses.	Mules.	Cows.	Water Closets clean in good order.	Water Closets full.	Houses in good condition as to roof, floor & wat'r supply
Fourth.....	3205	11036	178	120	213	1989	936	80 per cent.
Fifth.....	3127	15129	150	135	174	2494	530	85 per cent.
Sixth	2002	11378	142	72	253	1510	500	90 per cent.
Total	8224	37543	470	327	640	5993	1966	

This statement can be relied on as correct.

The men by whom it was made, are members of the Sanitary Police, well known by the people, to whom they will freely communicate their numbers and condition, as they are well aware that these domiciliary visits are not made for the sake of imposing taxes, or accomplishing anything else to their disadvantage.

Owners or occupants of all premises, on which were found violations of the various sanitary ordinances, were notified to have the same removed.

The number of notices issued to that effect, during the above mentioned time in the

Fourth Ward, was.... 1016

Fifth " "..... 633

Sixth " "..... 582

Total,..... 2231

All of which have been complied with.

After the general inspection had been finished, the principal duties were to attend to the various complaints of nuisances that continually arise, in an active and energetic population composed of all the various nationalities that inhabit the globe.

That part of the city where the yellow fever prevailed last year was particularly looked after; cleanliness was insisted upon, and the water closets were deodorized every week with copperas, or chloride of iron and carbolic acid.

The lodging and boarding houses in the most crowded part of the city, where infectious diseases would be most likely to make their appearance, were visited daily, to obtain all the information on that point that could be had, and the keepers of these houses were particularly requested to assist, as much as was in their power, in this sanitary measure, to which request they as cheerfully responded, as if they were acting in their own interest.

The sanitary work done, sums up in the Second District, for the entire year, according to the following table:

Sanitary Work done from December 31st, 1870, to December 31st, 1871.

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
1. Premises visited, inspected and reinspected	2126	1834	2053	1978	2295	1985	2463	1782	2131	2357	1960	1984	24912
2. Notices served to abate nuisances	448	396	335	354	402	467	763	934	889	334	83	121	5426
3. Premises disinfected	....	....	....	....	6	676	403	674	834	232	32	12	2869
4. Steamers and sailing vessels fumigated and disinfected	....	....	1	....	....	3	1	....	....	1	....	....	6
5. Streets, alleys and gutters disinfected	....	....	....	....	....	672	21	32	245	272	4	....	1246
6. Full privy vaults emptied and deodorized	532	396	421	265	426	183	94	61	32	53	46	127	2636
7. Leaky privy vaults repaired	83	42	18	17	15	23	34	18	21	19	26	19	335
8. Filthy private markethouses cleaned	30	40	40	50	50	27	49	58	60	60	30	13	500
9. Filthy horse and cow stables cleaned	63	54	32	66	43	58	65	32	47	37	23	12	532
10. Filthy yards cleaned	37	20	40	55	37	210	368	221	568	236	87	132	2011
11. Manure heaps, orders to remove	16	9	11	18	....	4	8	7	4	3	4	12	96
12. Dead animals, orders to remove	6	4	5	7	2	12	5	9	4	5	4	11	74
13. Hogs removed from premises	7	6	9	12	25	6	23	3	14	4	5	12	126
14. Stagnant water under dwelling houses remedied by filling lots	....	....	....	....	3	4	7	2	4	2	3	1	26
15. Dairies visited and inspected	17	11	8	8	9	5	4	5	6	7	15	11	106
16. Samples of milk obtained for test and examination	5	8	9	7	6	4	4	....	....	....	....	....	43
17. Houses fumigated	....	4	....	....	....	....	....	....	....	3	4	....	11
18. Illuminating oil explosions and accidents investigated	4	3	5	....	....	3	5	3	6	5	6	4	44
19. Small pox patients removed to Hospital	1	....	....	....	....	....	....	....	....	....	2	....	3
20. Small pox patients quarantined at their residences	....	2	....	....	....	....	....	....	....	2	....	....	4
21. Yellow fever patients kept under observation at residences	....	....	....	....	....	....	....	....	....	....	2	....	2
22. Yellow fever patients removed to Hospital	....	....	....	....	....	....	....	....	....	5	....	....	5
23. Reports of all deaths by fevers from Registrar's office	....	....	....	....	....	33	31	31	60	62	30	10	257
24. Dangerous sheds, galleries and chimneys removed or repaired	1	2	6	8	2	....	2	4	1	4	2	1	33
25. Observations of water in wells	....	....	....	....	1	2	4	4	5	4	4	4	28
26. Scholars in public schools vaccinated and revaccinated	68	124	147	52	5	....	....	....	....	8	27	38	469

The removal of stagnant water from under houses has been one of the measures adopted by the Board of Health, which is of permanent benefit to the city, and can only be fully appreciated by those who have experienced the disadvantages that are derived from occupying a house that is continually unhealthy, damp and mouldy, as compared with one that is dry, cheerful and healthy, and the occupants of these houses, from beneath which stagnant water has been removed, have always expressed themselves delighted and surprised at the great change for the better that such removal has brought about.

There were weekly observations, made on a certain well of water at No. 258 Chartres street, to compare the stage of water in it with that of the river, and which show that the soil is of such a spongy and porous nature, that the rise and fall of the river, which during that time amounted to over ten feet, made but little impression on it. Said well is covered by a roof, does not admit any rain water, its curbing is of brick, and it is 11½ feet deep.

On the	9th	day of	May	.....	9½	feet of water.			
" "	5th	" "	June	.....	10	"	"		
" "	17th	" "	"	.....	9½	"	"		
" "	21st	" "	July	.....	9¾	"	"		
" "	29th	" "	"	.....	9	feet	10	inches	of water
" "	11th	" "	August	.....	10	"	2	"	" "
" "	19th	" "	"	.....	10	"	of water.		
" "	26th	" "	"	.....	9¾	"	"		
" "	2nd	" "	September	.....	9	"	"		
" "	9th	" "	"	.....	9¾	"	"		
" "	16th	" "	"	.....	9	"	10½	inches	of water
" "	23rd	" "	"	.....	9	"	10½	"	"
" "	30th	" "	"	.....	9	"	10	"	"
" "	7th	" "	October	.....	10	"			"
" "	14th	" "	"	.....	10	"	2	"	"
" "	21st	" "	"	.....	9	"	6		"
" "	28th	" "	"	.....	9	"	7	"	"

On the	4th	day of	November	.....	9	"	10	"	"
" "	11th	" "	"	.....	9	"	10	"	"
" "	18th	" "	"	.....	9	"	4½	"	"
" "	25th	" "	"	.....	10	"	1	"	"
" "	2d	" "	December	.....	10	"	1	"	"
" "	9th	" "	"	.....	9	"	9		"
" "	16th	" "	"	.....	9	"	10	"	"
" "	23d	" "	"	.....	9	"	8½	"	"
" "	30th	" "	"	.....	9	"	10½	"	"

The Second District has been remarkably healthy during the entire year, notwithstanding the overflow from the lake Pontchartrain, which inundated that part of the city lying between the Old Carondelet Canal and the New Canal, as high up as Basin street, from the 14th of June to the 16th, at which latter date the water returned into the banks of the canal.

For particulars I refer to the annexed communication to the President of the Board of Health, which was given at the time and will explain itself.

OFFICE OF THE SANITARY INSPECTOR, SECOND DISTRICT,
New Orleans, June 22, 1871.

DR. C. B. WHITE, President Board of Health:

Sir—I have the honor to make the following report of the recent overflow, so far as the Second District is concerned:

When the levee at the foot of Hagan Avenue broke on Saturday, the 3d instant, the water was so high in the canals that by Sunday morning the entire Fourth Ward to the Old Basin, was inundated as far up as Franklin street. The water continued to rise gradually until June 8th, when it appeared to have come to a stand.

At this time the water presented the appearance of an offensive and putrid cesspool, which was observed particularly whenever it was stirred up, and showed that a great deposit was taking place all along its course, from the contents of sinks, cesspools and stables, with garbage from the dumping grounds, numberless dead animals, etc., which produced a sickening smell and had an unhealthy effect on those exposed to it.

On the 8th of June, when the water appeared to have reached its highest stage, I commenced immediately, according to your instructions, to disinfect the inundated district, all along the edge of the water from Canal street to the Old Basin with carbolic acid and perchloride of iron. The latter was discontinued on 10th, 11th and 12th, as the paved streets did not so essentially require the application, as those that were not paved, and it was applied again on the 13th, when the water had reached beyond Claiborne street.

The process of disinfection was continued from day to day, every morning and evening, following up the water as it went down, and in this process of disinfection, besides the streets and gutters, were included all the yards, stagnant pools and water closets of each house in the overflowed district; and there were consumed altogether one hundred barrels of carbolic acid, two barrels of copperas, and one hundred and fifty gallons of perchloride of iron.

On the 10th, the water had already receded as far as Claiborne street, on the 11th to Derbigny street, on the 12th to Prieur street, on the 13th to Galvez street, on the 15th to Broad street, and by the 16th it had been completely drained off the entire district, and all that part of the city is now as free from bad odors and injurious deposits from the overflow, as if the latter had not taken place.

The Administrator of Improvements by his great vigilance and energy in repairing the streets, and replacing the bridges has contributed largely to its present excellent condition.

Very respectfully,

Your obedient servant,

F. B. ALBERS, M. D.,

Sanitary Inspector, Second District.

When it is taken into consideration, that the overflow took place at that particular season of the year, when the heat of the sun is intense, and when is considered also the vast amount of filth which was at the time washed up, and diffused through that part of the city which comprises the 4th ward and is inhabited by 11,000 people, (the domicils of 8,500 of whom were

overflowed), it might naturally be supposed that this would be the cause of much sickness during the ensuing summer, but thanks to timely and abundant rains, with which the city was blessed, assisted by the energetic exertions of the entire Sanitary Police of the city (in insisting on the greatest cleanliness and distributing carbolic acid freely wherever needed and particularly as the water subsided), the results have been very extraordinary, as testified by the rate of mortality from malarial fevers that took place during the two successive years of 1870 and 1871.

There were the following deaths from malarial fevers in the FOURTH WARD, the only one afflicted by the overflow:

	1870.	and	1871.
Remittent Fevers	5		1
Malarial "	3		2
Congestive "	6		4
Pernicious "	5		3
Intermittent "	4		1
Bilious "	5		2
	28		13

YELLOW FEVER.

The experience of the last year having given abundant evidence that this disease could be kept from spreading, the Sanitary Inspectors, assisted by their intelligent and energetic assistants, endeavored to prevent it from making its appearance at all.

The yellow fever germ or poison is probably not generated in the human system, nor transmitted from one person to another in any way. (In those cases which seem to arise by personal contagion the poison is without doubt transmitted by the clothing.)

It is an organic poison, the resultant of the decomposition of the exhalations and secretions of the human body, accumulated and confined in ill ventillated habitations brought in contact with the effluvia of the public filth of cities and acted on by a constantly elevated temperature above 80 degrees Farenheit, for two or three months in succession.

This poison is taken into the system, after the manner of marsh malarial poison (or terrestial emanations), which is strictly endemic of local origin, not contagious and not portable.

The yellow fever poison however, is portable, adheres to fomites, and can be carried in vessels, trunks, etc., from one point to another, and thus be propagated, and bears transportation to long distances, without losing its power of reproduction, when it meets with favorable conditions, among which that of a high temperature is essential. It consists doubtless of some form of microscopic life, occupying that debatable ground between the animal and vegetable kingdom, but capable of rapid self-propagation, lying on and moving along the ground, not influenced greatly by winds or it would spread far more rapidly, and is like most other minute and tender germs checked by a freezing temperature, which though it does not perhaps kill the germ or seed, is sufficient to suspend its activity for a season to be called into action again, at a later period, by particular meteorological conditions or other suitable circumstances. The effort to prevent the yellow fever from making its appearance in the Second District, has been almost completely successful, and it was accomplished by enforcing the strictest cleanliness in that portion of the city that has always been notorious for its unhealthiness, and where the yellow fever has not unfrequently first made its appearance in former years. As for instance, in the neighborhood of the French Market, where common lodging houses abound and people of the lowest condition of life congregate in large numbers and in unrestricted license and confusion, no decaying substances of any nature were allowed to remain on any of the premises.

The water closets of all suspected places were deodorized and disinfected with carbolic acid and a saturated solution of carbonate of iron, in strong hydro chloric acid, every week throughout the entire sickly season.

Another one of the most important duties was to visit all the suspected places, rendered suspicious by the presence of fever in them last year, every day, and frequently twice a day,

to ascertain if there was any one sick in any of those houses, and the landlords of all the lodging and boarding houses were particularly requested to assist, to the best of their ability, in ferreting out any case of sickness that occurred on their premises, in which measures they all coincided and gave frequently important information on that point.

During the latter part of July, 1871, a party of five men, all natives of Malta, and between 24 and 28 years of age, less than one year in the United States, arrived here from Galveston, where they had resided a short time.

These men rented a room on the ground floor of the court-yard connected with the building No. 239½ Decatur street, and which opens on the street, through an alley 69 feet long and 8 feet wide with a double iron gate at the entrance.

This court yard forms a hollow square, 62 by 36 feet, built all around its four sides, two stories high, and occupied by 16 families, comprising 60 persons, all natives of Italy, Sicily and Malta, and totally unacclimated, not one of them having been in the country over three years, and the majority less than one year. Their water supply is river water and they have no cistern.

The room that these five men occupied is 14½ feet wide, 15½ feet long and 11 feet high, with a door 9 feet high, 4 feet wide, and a window opening on the court-yard, which never admits any sun-light and almost no ventilation.

Soon after their arrival they were joined by two more of their countrymen, from Galveston, and all *seven* occupied this room. Their occupation was to peddle onions, lemons and limes. The boxes in which they bought the latter served them as bedsteads, which with a few mattresses, a table and a few cooking utensils constituted their only encumbrances.

Two of these men were taken with yellow fever almost simultaneously, on the 24th October. As soon as I obtained information that they were sick, I had them taken to the hospital, where they soon after died. I had the others removed to another room, at the time unoccupied, in the same yard and of the same dimensions as the former, allowing them to take nothing out with them but the clothes they had on at

the time, while their former room underwent a thorough disinfection and fumigation for ten days, after which they again occupied it. All their clothes, mattresses, etc., which remained in their first room, were then washed and scalded, deodorized with chlorine, fumigated with sulphur, disinfected with carbolic acid and abundantly aired, a continued watch being kept over them night and day the whole time. To their clothing, which consisted of woolen shirts and woolen pants, shoes without socks, and a straw hat, and which they did not change, some of the fever germs or poison must have adhered, and when 14 days later two more of their countrymen arrived, here from Galveston, and lived with them in the same room, one of them was taken sick with the fever within three days, carried to the hospital on November 17th, and died on the following day. The other took sick within seven days, November 20th and died November 23rd.

This shows that although disinfection and fumigation will destroy the poison, still minute contagious particles will escape its influence, and that during a season favorable to its developement, the disinfection must be continued and persevered in every three or four days throughout the season.

Not another person in that yard or in that neighborhood took the fever afterwards.

There were also three other deaths from yellow fever in the Second District—on Franklin street, between Canal and Bienville streets, a distance of two squares. An Italian by the name of Dominique Gaisalla, who had resided at No. 38 Franklin street for about twelve months, and who was a lemon peddler by occupation, and a friend and associate of the above mentioned persons from Malta at No. 239½ Decatur street, and in daily communication with them, was taken sick October 26th, and died October 30th. He was not attended by any physician. The Coroner held a "view" on his body and had him buried under a certificate of "congestion of the brain."

Mrs. Reese, residing at No. 12 Franklin street, a native of Baltimore, and unacclimated, was acquainted with the before mentioned person and had visited him during his sickness. She was taken on November 1st, and died November 6th with

black vomit. The husband of this lady took the fever about December 18th, and remained sick until December 28th, when he died of undoubted yellow fever, according to the burial certificate of his attending physicians, at No. 237 Dryades street, in the upper part of the city, to which place he had been removed.

Frank Bersoti, an Italian, and a waiter in a bar-room and restaurant at the corner of Customhouse and Franklin streets visited both of the before mentioned persons while they were sick, carrying them refreshments and drinks. He took yellow fever November 7th and died the 14th.

As it was late in the season, and the fever could not possibly spread to any great extent, and as there had been a good deal said about the uselessness of trying to stop it and stamp it out, I thought when the first one of these cases occurred that it might perhaps do no great deal of harm to see what the cases would do if let alone, and the virulence with which it spread would be sufficient to convince any one that it would have led to serious results early in the season, particularly with the evident great tendency towards a general epidemic, that has been evinced throughout the Southern States during the past season.

On September 13th I was instructed by the President of the Board of Health to take charge of that part of the Fourth District where the yellow fever had made its appearance, according to the following order:

OFFICE OF THE BOARD OF HEALTH, No. 159 CANAL STREET,
New Orleans, September 13, 1871.

DR. F. B. ALBERS, Sanitary Inspector Second District.

Sir—I have ordered the Sanitary Police of the First District to report to you at the corner of Fourth and Constance streets, Fourth District, for temporary duty.

You will take the Sanitary police on duty with you, to the same locality, and use energetic measures for the disinfection of this portion of the city.

Officer Mumford will receive orders from you; you will make requisitions to this office for all disinfectants needed.

Very respectfully,

(Signed) C. B. WHITE, M. D.

President Board of Health, State of Louisiana.

The fever had been carried to the Fourth District by J. M. Rawlins, a Customhouse officer, who died at No. 118 Washington street, August 20th, 1871. Mr. Rawlins had resided in the city for only ten months, having come here from Alabama. He was employed at the Customhouse, as a river inspector, and left the city on duty for the Balize July 29th; went on board of the Brig Hope to take charge of her, in his official capacity, August 11th, the same day on which she crossed the bar, being eleven days from Havana, having left there August 1st. She arrived at New Orleans, August 13th, and entered at the Customhouse August 14th. Mr. Rawlins was taken sick on the 15th and died on the 20th with black vomit.

Mr. E. W. Pierce, who resided in sight of the latter mentioned place, and less than one square of ground distant, was taken sick September 8th, and died September 13th.

Mr. David Rosenberg, who lived a short distance from the latter, and in a direct line with the wind, with the two former was taken sick, September 10th, and died the 15th. From these cases the fever spread rapidly, from house to house, and when I took charge of the infected District, there were cases of it in each of the adjoining houses of the above enumerated cases, particularly on Fourth and Fifth streets, between Chippewa and Magazine streets.

There were sixteen cases under treatment at the time I took charge of the District, nine more were taken subsequently, up to the 28th, the last one died on the 23d; no more cases occurred up to the 4th of October, when I withdrew from the District, as the threatened epidemic had been prevented, and my presence was imperatively necessary in the Second District.

The means adopted to check the course of the yellow fever were an energetic, thorough and liberal distribution of carbolic acid over the entire vicinity of the infected District, extending

its application as far as the influence of the poison could have prevailed.

In this way there were consumed, between Wednesday the 13th and Saturday the 16th, 10,000 gallons of carbolic acid, and it may be said that the entire vicinity was soaked in it.

It was freely applied to the filthy streets, unpaved yards, alleys, stagnant gutters and ditches, by which all of the streets and many of the houses were surrounded, as well as to manure heaps, collections of refuse and other nuisances, which abounded in that neighborhood. Carbolic acid was chosen for this purpose as being the best disinfectant known, as it coagulates all albumen, and is certain to destroy all the lower forms of life. It volatalizes easily and freely, and thus attacks the hidden germs of disease that float in the atmosphere.

This process of disinfection was repeated daily, and the atmosphere became highly charged with the vapor of the acid, which found its way into the dwellings of the sick and healthy alike. Many persons fancied at first that the smell produced headache,but the most of them soon became convinced ot their error, and as there are persons who dislike the smell and complain of nauseau when exposed to it, so would these persons be similarly affected by any unusual smell, while they can bear patiently with the most loathsome smells because they are familiar with them.

Notwithstanding this, it cannot be denied that the Sanitary Inspector engaged in its distribution was the most unpopular man in the neighborhood at the time, but the "end justifies the means," in this case at least, and the result has been that the disease was checked in its onward course, and a malignant and wide-spread epidemic was prevented. Not a single case occurred beyond the limits where it was raging on the 13th. In the course of a month a few isolated cases made their appearance again, and continued to do so until frost, which coincides with the remark before made, that minute contagious particles will escape destruction, propagate again, and when in sufficient force, make themselves felt. The importance, therefore, of continuing the application of disinfectants every three or four days during the season favorable to its develope-

ment, is evident. In no instance has a second case occurred of fever in any house where this course was carried out, but where it was objected to and positively prohibited by heads of families, several members of the same household took the fever in succession.

Whenever a death occurred from the fever, the house was, in every instance, thoroughly disinfected by fumigating the bed rooms, bed clothes and body clothes alternately with sulphurous acid gas and chlorine, during several days in succession; and the principal hot beds of the fever, as for instance, on Fourth, Fifth and Magazine streets, which were entirely deserted by their occupants and in charge of the Sanitary Police, were daily disinfected, fumigated and deodorized from their very foundation up to the roof, for several weeks.

In addition to this nine hundred and sixty (960) notices were issued to the different houses in the immediate neighborhood where the fever prevailed, to have their premises cleaned and deodorized, all of which were complied with.

On October 4th, I addressed to the President of the Board of Health the following communication:

OCTOBER, 4th, 1871.

Dr. C. B. WHITE, President Board of Health:

Sir: According to your instructions of September 13th, I proceeded to the 4th District, and took charge of that portion of it where the yellow fever prevailed, and I have now the honor to report, that the last case of yellow fever which occured on the 28th is recovering and out of danger, and that there has not been a death from yellow fever, since the 23d. When I took charge of the infected district, the fever prevailed in that portion of it bounded by Chippewa, Magazine, Sixth and Third streets. It did not spread beyond those limits owing to the energic measures taken to prevent it. Assisted as I have been by active coöperation of the Sanitary Police my special mission has been accomplished, and there is no necessity of my remaining on duty, in the Fourth District. I respectfully re-

quest to be relieved from further duty in the Fourth District, as the Second District stands in special need of my services and those of my officers at this particular season.

Very respectfully your obedient servant,

F. B. ALBERS, M. D,

Sanitary Inspector 2d District.

OFFICE BOARD OF HEALTH, STATE OF LOUISIANA.
159 CANAL STREET.
NEW ORLEANS, October 4th, 1871.

Dr. F. B. ALBERS, Sanitary Inspector.

Sir: Agreeably to your request you are hereby relieved from the temporary duty in the Fourth District to which you were assigned by orders from this office on September 13th.

Very respectfully,

C. B. WHITE, M. D.,

President Board of Health, State of Louisiana.

With the rapid strides that sanitary science is making towards perfection, the time is probably not far distant when this disease which now strikes such terror into multitudes of people will be disarmed of its horrors and made, comparatively speaking, harmless.

THE SMALL POX.

Made its appearance in the spring and again in the fall months. In each instance, the cases were completely isolated, and the greatest precautions were taken to prevent any contaminations that might occur from the surroundings of the patients, all bed and body clothing were rendered harmless by repeated boilings and free exhibition of chlorine gas, and so successful has this course been that not a second case has occurred in the neighborhood.

A great deal of this success must be attributed to the thorough system of gratuitous vaccination adopted by the Board of Health, which has been in effect for the last two or three years. The 29th section of the Sanitary Ordinances requiring the *vaccination of all the children* that attend the *public schools*, has been so thoroughly carried out that in inspections just made of the 2032 children that are in attendance upon the public schools of the Second District, thirty-four only require vaccination.

In closing this report, I make again the request of rewarding those of the members of the Sanitary Police who have distinguished themselves by fidelity, zeal and efficiency with promotion, and recommend from the Second District, T. G. Stephout and L. D. Allen as worthy of that honor.

Very respectfully, your obedient servant,

F. B. ALBERS, M. D.,

Sanitary Inspector, Second District.

Report of Sanitary Inspector, Third District.

ALFRED W. PERRY, M. D.

OFFICE SANITARY INSPECTOR, THIRD DISTRICT,
NEW ORLEANS, December 31st, 1871.

DR. C. B. WHITE, President Board of Health.

Sir—I have the honor to submit the following annual report of the sanitary condition of the Third District, and of the transactions of this department for the year just ended.

I was on duty in the Fourth District, from January 1st until March 17th, when I was transferred to the Third District, taking the place of Dr. J. S. Clark.

EPIDEMOLOGICAL DISEASES.

During the past year this District has had a remarkable exemption from epidemic diseases, while during the year 1870 there was a severe epidemic of small pox and of yellow fever.

Only four cases of small pox have been reported in the District during the year.

The first patient contracted the disease while employed on the British steamship "St. Louis," which had had a number of cases of small pox on her voyage from Liverpool. The house of the patient was well fumigated with chlorine, and the bedding destroyed. These efforts proved successful in limiting the disease to this one house. Three other cases of varioloid occurred, the mode of origin being unknown.

Every effort has been made to render comparatively harmless any future visitation of small pox, by the protection of the population by vaccination. All inmates of public institutions, pupils of the public schools, etc., who were under control of the public authorities, were required to be vaccinated; and gratuitous vaccination was offered to the public at large. Practicing physicians are gratuitously supplied with vaccine matter.

In the months of January and February all the public schools were visited by Dr. Clark, then Sanitary Inspector, who examined 2852 pupils, and vaccinated 889.

During the months of November and December I again visited all of the public schools, and examined 877 pupils who had never before been examined, and found 142 requiring vaccination, 90 of whom I vaccinated.

The small number (142) requiring vaccination or revaccination, out of more than four thousand pupils, shows how thoroughly the vaccination was done last spring by Dr. Clark. The vaccine matter used acted well; not a single ulceration or obstinate sore having resulted therefrom.

The following is a tabular statement of the results of the examination and vaccination of the public schools in the District:

NUMBER OF SCHOLARS.	Filmore.	DeSoto.	Chalmette.	Washington.	Le Breton.	Gentilly.	Beauregard.	McCarthy.	Hancock.	Chartres.	Marigny.	Spain.	Villeré.	LaHarpe.	Milneburg.	Dauphine.	Total.
Absent	15	21	36	23	4	7	6	27	13	19	11	11	14	20	4	5	236
Examined	587	556	302	371	79	60	169	369	64	366	141	66	106	163	9	69	3458
Had distinct marks	289	393	189	300	42	35	118	156	39	157	27	23	23	51	4	16	1872
Had faint marks	14	3	13	2	..	.	2	10	..	11	12	..	2	...	..	2	71
Unvaccinated	158	127	64	52	29	17	34	71	19	120	72	23	45	53	3	27	914
Had small pox	27	21	7	7	2	3	4	14	2	12	22	15	16	35	..	5	192
Had varioloid	...	...	1	1	..	..	..	..	..	..	..	..	..	..	..	.	2
Vaccinated	203	89	69	31	34	22	29	71	12	182	40	27	60	70	5	35	979
Referred to family physician	82	63	35	31	1	..	19	31	14	...	45	1	...	1	..	..	324

NOTE.—All who were not vaccinated in the Schools by the Sanitary Inpector, were required to be vaccinated by the family physician.

YELLOW FEVER.

Of yellow fever there were reported five cases, against fifty-nine (59) deaths last year; two of the five cases had been exposed to the disease in Natchez, came here sick, and died in a few days afterward. In the other three cases no particular source of contagion could be traced, although there may have been such. In these cases the houses were fumigated with sulphurous acid, carbolic acid was sprinkled plentifully in the vicinity, and in the premises, so that its vapor would diffuse into the air.

It is now generally believed by the profession, that yellow fever is transmitted by minute germs or spores, which may exist in the air of an infected house or neighborhood, or in furniture, clothing, curtains, carpets, etc. In these situations the germs cannot be reached by any liquid or solid disinfectants; heat cannot be applied to them for the purpose of disinfection, and chlorine, and sulphurous acid gas, although they have a powerful action for a short time, are soon changed by hydration and oxydation into inactive compounds.

The action of carbolic acid is more permanent, and being easily vaporizable, it reaches every crevice in a house, every fold in a garment, and is not readily changed.

Acting in accordance with these views, carbolic acid was recommended to be chiefly used, and was used extensively in disinfection.

The good effects of this action are shown by the fact that no *second* case of the fever occurred in the same house or neighborhood, while during the preceding year many succeeding cases occurred in the same house; and that the fever was confined to one or two blocks.

The number of deaths from malarial fevers of all kinds is large. The number during the last six months of the year, in the Third District, was forty-four (44), being in the proportion of eleven (11) deaths to 10,000 of population. In the whole city the proportion was 17 per 10,000 of population. Comparing this again with Chicago, we find that the rate of deaths from malarial fevers, during the years 1851, 1852 and 1853 was 6.66 per 10,000 of population, in 1861, 1862 and 1863 the proportion was 1.3 per 10,000.

There can be no doubt that the large mortality from malarial fevers of all kinds is due entirely to the defective drainage of the city and its vicinity. In the death rate from malarial fever in Chicago above referred to, the rate during the years 1851, 1852 and 1853, was before a comprehensive and perfect drainage was commenced. The average of these years was 6.$\frac{2}{3}$ per 10,000 of population. In 1861, 1862 and 1863 after the drainage works were completed, and in full operation, the death rate from this cause was reduced to 1.3 per 10,000,—less than one-fourth of what it formerly was. In our own city can be seen the good effects of drainage in decreasing the mortality from this cause. In the spring of 1868 drainage canals and machine which had been preparing for several years before, were set in operation, and four thousand five hundred acres of land, which had always before been covered with water, were entirely freed from it, and have remained dry ever since that time. This land is comprised between the New Canal, Carrolton Avenue, Claiborne street (to Toledano) and a line from Toledano street to Carrollton, following the St. Charles Street Rail Road, and about 300 yards north of it.

The effect of this drainage of so much land in our vicinity is shown by comparing the following table of mortality from malarial fevers, (Intermittent, Remittent, Bilious, Congestion and Pernicious), before and after this drainage.

Year.	Rate per 10,000 of Population.	Year.	Rate per 10,000 of Population.
..1850	57	..1868	18
..1851	45	..1869	17.4
..1852	55	..1870	22
..1853	40	..1871	17
..1867	34		

The Third District has had no artificial drainage, and the advantages of nature in this respect are very insufficient. In this district the swamp land is nearer the centre of population than in the other districts, and this causes a large death rate from diseases caused directly or indirectly by marsh miasmata. I have been assured by physicians having a large practice in the Third District that the nearer the swamp, the more frequent were cases of fever, when the wind blew from that direction.

The large drainage canals now being excavated, and drainage works to be erected in the rear of the Second and Third Districts, will, I am informed, be put in operation during the coming year, and this will cause a still further reduction in the number of deaths which are caused both directly and indirectly by marsh miasmata. The land to be drained in the Third District comprises more than seven thousand acres.

COAL OIL ACCIDENTS.

These, though frequent, are not so much so as heretofore. The attention of thinking people has been attracted to the report of the details of accidents made to the Board of Health, and to its communications on the subject of dangerous coal oils. Many persons, therefore, refuse to use them at all, whilst others have learned to discriminate between the safe and dangerous oils, and use that which is safe.

I have examined a number of oils which have caused acci-

dents, and with one exception have found them to consist entirely of benzine and naptha, simply christened with a fancy name, and styled "non-explosive." The exception mentioned was a heavy oil contaminated with benzine, which is much cheaper than good oil, but equally as dangerous as the light oils or naptha.

CHEMICAL EXAMINATIONS AND ANALYSES.

The charge of the Laboratory of the Board of Health having been assigned to me, I have made a number of experiments and analyses, viz: of the gaseous products of sewer decomposition; on the practical effects of disinfectants; on sewer decomposition; analyses of several samples of factitious golden syrup; and upon the effect of chemicals added to benzine to render it safe.

On each of these subjects I have made special reports at various times during the year.

Fifty samples of pure and ordinary milk have been examined.

The average degree of the lactometer of the pure milk was 18.19 degrees.

The average amount of cream was (by volume) 12.94 per cent.

Only two samples of milk were found which were adulterated. In both these cases the vendors were prosecuted, acknowledged having adulterated it, and were fined.

STREETS, GUTTERS, ETC.,

These have been kept in good condition during the year, except in August. In the middle of this month, when sanitary cleanliness is most important, a large force of men were dismissed from the street cleaning department, and the gutters and streets remained almost untouched for about two weeks. I made a special report to you on this condition of the district, and recommended that crude carbolic acid be used to prevent the ill-effect of the filthy condition of the district.

In accordance with instructions from the Board of Health, the streets and gutters along eighty-eight blocks were sprinkled with about 1000 gallons of crude carbolic acid from a sprinkling cart.

TENEMENT HOUSES.

The crowded tenement houses which had been the seat of

yellow fever and cholera in previous years, were constantly visited during the months of August, September and October, and fifty-four which were found to be filthy, were disinfected with carbolic Acid. No case of yellow fever appeared in any of the premises infected with it last summer.

I had the services of two men of the Metropolitan Sanitary Police, from January 1st, October 20th, and since then the services of but one man—Officer Maroney. A large amount of labor has been performed as the following tabular statement will show.

Tabular Statement of Sanitary Operations for 1871.

NATURE OF	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Inspections made	224	429	362	1362	2884	915	409	215	332	791	345	153	8421
Reinspections made	79	105	65	303	539	272	65	53	58	65	49	33	1673
Nuisances found requiring abatement	75	100	61	290	534	212	59	48	58	65	45	29	1676
Notices to empty v'lts	72	96	56	277	528	176	48	32	42	53	35	27	1442
" repair vaults	...	...	...	3	11	8	2	1	...	9	...	...	34
Defective v'lts reported	...	...	...	3	11	8	2	1	...	9	...	...	34
Notices to disinfect v'ts	...	...	...	...	...	...	...	47	69	...	...	...	116
" clean premises	1	...	1	11	14	9	8	11	14	...	6	2	77
" cleanse stables	...	...	...	...	8	6	1	2	1	...	...	...	18
Notices to fill lots	...	...	...	...	...	...	...	2	...	...	...	...	2
" remove hogs	2	4	4	2	...	...	...	2	1	1	4	...	20
" supply water	...	...	...	...	...	...	...	...	...	...	...	...	.....
" raise and drain alleys	...	...	...	...	...	...	...	...	2	...	...	...	2
Dangerous buildings reported	...	1	1	...	...	...	...	...	...	...	...	...	2
Premises disinfected	...	...	...	...	...	...	...	...	...	31	23	...	54
" fumigated	...	1	3	...	...	...	...	...	...	3	3	...	10
Coal Oil accidents investigated	...	2	...	...	2	...	1	...	...	...	...	...	5
Cases of small pox	1	...	3	...	...	...	...	...	...	...	...	...	4
Cases of yellow fever	...	...	...	...	...	...	...	...	...	2	3	...	5
Specimens of milk examined	5	6	6	...	6	12	...	6	5	4	...	...	50
Persons reported for non-compliance	...	...	1	...	...	...	1	...	1	...	...	...	3
Daily water guage	...	...	...	...	16	...	...	...	...	...	...	23	39
Blocks of streets and gutters disinfected with carbolic acid	...	...	...	...	...	...	...	88	...	...	...	...	88

All of the notices served have been complied with save two.

Very respectfully,

ALFRED W. PERRY, M. D.,

Sanitary Inspector, Third District.

Report of Sanitary Inspector, Fourth District.

JULES A. MATHIEU, M. D.

OFFICE SANITARY INSPECTOR, FOURTH DISTRICT,
New Orleans, December 31, 1871.

To the President of the Board of Health of the State of Louisiana:

GENTLEMEN: I have the honor to submit the following summary report of the operations of this office and of the sanitary condition of the Fourth District of this city during the year 1871, the sanitary work during the first three months of which, took place under the direction of Dr. A. W. Perry.

YELLOW FEVER.

My investigations satisfy me that the first case of yellow fever having taken place this year in this city, that of Charles Collenberg, whose death took place at the Charity Hospital on the 4th day of August, was contracted on the bark "*Mary Pratt*," from Havana, and then lying at the foot of *Harmony* street, as related in my special report of the 11th day of August.

The second case of yellow fever also took place in this district, and was that of Mr. John M. Rawlins, a Customhouse officer. The case was contracted on board the brig, "*Hope*," also from Havana, the death taking place at No. 118 Washington street, on the 20th day of August.

The fourth case was that of Hon. E. W. Pierce, a member of your honorable body. The death took place at No. 136 Fourth street, on the 13th day of September. From personal observation I can but think this case to be connected with that of Mr. J. M. Rawlins.

From this case yellow fever became locally epidemic. The total number of cases in this district was 66, and the total number of deaths 24.

As the history of this local epidemic, and the great efforts for its arrest and its destruction, have been fully given in the general report of the Board, it is unnecessary to repeat the facts again.

I will only repeat here that the

Number of houses fumigated was	39
" " yards disinfected "	45
" " privies " "	421
" " lineal squares disinfected (by hand) was	234
" " " " " (by cart) "	684
" " " pavements disinfected (by cart) "	104

SMALL POX.

Only four cases of this loathsome disease took place this year in this district, and the usual sanitary measures having been rigidly carried out, the result was most satisfactory. 4108 pupils were examined at the public schools with reference to vaccination, 181 of whom were vaccinated, the balance being already protected.

MANAGEMENT OF CONTAGIOUS DISEASES.

In regard to the management of such cases, I beg leave to repeat my recommendations of last year.

"The transformation of private residences into 'Lazarets' is impracticable for the following reasons:

1st. Ingress and egress cannot be refused to the members of families where any one of the above diseases occur, they having their vocations to attend to.

2nd. Ingress and egress cannot be refused to the female members of such families, or their servants, or their children, they having the marketing and other provisions to procure daily for the inmates of said residences, the sick included.

Proper legislation should, therefore, empower the Board of Health to cause such cases to be removed to special institutions or locations."

CEMETERIES.

Renewing also my recommendations of last year on this subject, I beg leave to repeat that "interments should not be allowed in the heart of cities, and that the existing graveyards be removed as speedily as practicable; and the bodies of persons dead from contagious or infectious diseases, should, immediately after death, be placed within '*air tight coffins*', in order to prevent those performing the last offices from being poisoned by the emanations arising from such bodies." Legislation on this point would be most desirable.

NECESSITY FOR WATER.

I would also recommend the extension of large mains from the Water Works, up the front of this District, with openings into each street gutter. This would be of considerable value for health, and to extinguish fires.

RESULTS OF GENERAL INSPECTIONS.

The regular annual, or house-to-house, inspections made this year, in this District, and begun April 20th, give the following statement, thus classified:

1.	Total number of Inspections	6,091
2.	Vacant lots	196
3.	Lots well filled	5,499
4.	Lots below the grade	492
5.	Houses built of brick	409
6.	" " " wood	5,486
7.	Roofs slated	4,004
8.	" shingled	1,889
9.	Premises with leaky roofs	2
10.	" " good floors	5,867
11.	" " bad floors	22
12.	Number of rooms	21,390

13.	Premises unfurnished with yards..... ..	3
14.	" with privies in good order.....	3,598
15.	" " " full.....	2,278
16.	" where earth closets are used.....	3
17.	" without privies.....	9
18.	" with hydrants.....	0
19.	" " cisterns.....	5,868
20.	" unfurnished with cisterns.....	27
21.	Water supply (gallons).....	12,050,784
22.	Unoccupied dwellings, (closed).....	7
23.	Number of persons occupying dwellings.....	27,952
24.	" " animals kept on premises: horses, 394; mules, 692; cows, 304; hogs, 16.....	1,406

I offer the following tabulated statement of the sanitary work done in this district during the year:

Table of Aggregate Work.

NATURE OF	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Inspections (house to house)	...	...	...	454	1630	2023	445	503	251	459	290	36	6091
Inspections (special)	65	16	15	44	242	272	48	269	411	262	156	47	1847
Reinspections	...	...	...	92	369	2614	812	475	223	...	50	31	4655
Notices to empty sinks	21	46	39	88	336	869	75	...	...	...	2	30	1505
" disinfect "	...	...	...	...	...	...	...	70	526	83	43	...	722
" rebuild "	...	...	...	...	2	7	2	1	2	2	3	...	19
" repair "	...	...	...	...	1	6	1	2	1	4	1	2	18
" clean premises	1	2	...	3	...	...	...	...	...	1	3	4	14
" " yard gutters	2	5	4	1	...	7	...	...	...	...	3	3	25
Notices to fill lots	...			...	...	107	6	3	31	14	37	...	198
" remove hogs	2	4	3	2	4	8	4	5	3	5	4	2	46
Houses fumigated	...	2	...	1	...	...	...	1	28	7	...	...	39
Coal Oil accidents reported upon	...	...	...	...	...	...	...	...	1	...	...	...	1
Bone burning establ'hments reported upon	...	...	...	...	...	...	...	...	...	2	...	...	2
Rendering establishments reported upon	...	...	...	...	...	...	...	...	...	1	...	...	1
Cases of small pox reported	...	3	...	1	...	...	...	...	...	...	...	...	4
Cases of yellow fever reported	...	...	...	...	...	...	1	1	30	28	6	...	66
Yards disinfected	...	...	...	...	...	...	...	7	28	10	...	...	45
Streets disinfected by hand	...	...	...	...	...	...	...	81	12	141	...	...	234
Street pavements disinfected by hand	...	...	...	...	...	...	...	...	79	25	...	...	104
Privies disinfected	...	...	...	...	...	...	...	39	328	54			421
Street gutters disinfected by wagon	...	...	...	...	...	...	...	114	570	...	...	...	684
Specimens of milk examined	6	6	6	6	6	6	6	6	6	6	6	6	72
Observations of water guage	...	...	...	...	2	4	4	4	4	4	4	4	30
Vaccinations	...	89	25	...	...	...	...	...	...	...	67	...	181
Number of complaints (subject of special report)	1	1	1	4	13	6	13	5	42	3	40	1	131

Most of the work mentioned in the foregoing table was done by Officer E. Mumford, the only man permanently on duty in this district.

PRIVY VAULTS.

"These should be built but eighteen inches below the surface of the ground, *the whole structure should be absolutely water-tight.*"

STREETS AND GUTTERS.

The streets and gutters in this district have been kept in a fair condition this year, taking into consideration the absolute want of water for street use, save when Providence vouchsafes rains.

CARS.

The numerous accidents by cars at night make appropriate the renewal of my recommendation of last year:

"A lamp or reflector of suitable size should be fixed upon the front of the car, in such manner that the light, passing clear of the head of the driver and the animal drawing the car, should light up the track clearly some distance in advance of the moving car."

MARKETS.

Markets, both public and private, have been kept in good order, and the quality of meats and vegetables sold has been quite satisfactory.

SUB-SOIL WATER.

For sub-soil water observations, made to ascertain if said water is affected by the stage of the Mississippi river, and to afford data for the philosophical sanitarian, I selected, on the 18th day of May, two covered wells, into which no surface water ran, one on Washington street, very near the river, between Fulton and Tchoupitoulas streets, and the other on Washington street, very far from the river, corner of Clara street. Said observations proved most clearly that said water is "*dependent on rains exclusively.*"

The foregoing report is respectfully submitted,

JULES A. MATHIEU, M. D.,

Sanitary Inspector, Fourth District.

Report of the Sanitary Inspector, Fifth District.

CHAS. P. AMES, M. D.

OFFICE SANITARY INSPECTOR, FIFTH DISTRICT,
NEW ORLEANS, December 31st, 1871.

C. B. WHITE, M. D., *President of the Board of Health, State o Louisiana:*

SIR: I have the honor to submit the following annual report of the operations of this office, and the sanitary condition of the Fifth District, for the year ending December 31st, 1871.

This district includes that portion of the parish of Orleans and Jefferson, situated on the right bank of the Mississippi river, and extends from the upper line of Jefferson to the lower line of Orleans parish, a line upon the right bank of about thirty miles.

The following table exhibits the result of the annual general inspection:

Number of premises inspected	1972
" " " reinspected	962
" " inhabitants	8139
" " rooms	4359
" " houses built of wood	1941
" " houses built of brick	31
" " privy vaults in good condition	1573
" " privy vaults full	342
" " premises without privy vaults	37
" " " with privy vaults much out of repair,	20
" " " with floors in good condition	1953
" " " " " " bad "	19
" " " " roofs " good "	1921
" " " " " " bad "	51
Water capacity of cisterns, gallons	1,790,960

Average water capacity to each room, gallons	410
" number of inhabitants to each house	4.12
" " " " " " room	1.8
" " " rooms to each house	2.7
Number of dairies	14
" " cows	322

VIOLATIONS OF SANITARY ORDINANCES.

Number of dead animals found in the streets	8
" " filthy gutters	26
Offal in yards	3
Full privy vaults	343
Leaking cisterns	6
Premises without cisterns	37
Leaking roofs	19
Yards in which offensive beef hides were stored	1
Slaughterhouses in filthy condition	1
Filthy cow stables	2
Number of lots below proper grade	29
" " filthy hog pens	4
" " privies broken down	20
" " premises without privy vaults	28

All of the foregoing violations of the Sanitary Ordinances were abated upon notices to that effect being served from this office.

I present the sanitary work done during the year in the tabulated form which follows:

Tabular Report of Sanitary Work done during the year 1871.

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Inspections made	...	...	...	636	720	437	117	62	..	...	..	....	1972
Reinspections	...	...	..	...	...	...	...	..	8	954	..	....	962
Notices to empty privy vaults	1	1	1	47	39	33	2	6	..	...	..	1	130
Notices to rebuild privy v'lts		...	...	...	...	...	4	4	..	...	..	....	8
" repair "	...	...	...	...	...	7	...	3	..	...	..	....	10
" disinfect "	...	...	...	...	5	...	4	1	3	...	..	....	13
" clean premises	...	...	1	...	...	1	...	..	..	...	..	....	2
" " gutters	...	1	1	...	...	1	1	..	..	...	..	....	4
" fill lots	...	1	5	...	...	...	..	..	..	...	..	....	6
" remove hogs	...	2	...	...	1	2	3	..	..	...	..	....	8
" remove dead animals	...	...	8	...	...	...	..	..	..	...	..	....	8
Notices to supply water	...	...	...	5	1	...	..	..	..	...	..	....	6
" repair cistern	...	...	...	3	1	...	..	..	..	...	..	....	4
" " houses	...	...	...	...	...	1	..	..	..	...	..	....	1
" remove beef hides	...	...	...	...	...	...	..	1	..	...	..	....	1
Dangerous build'gs reported	..	...	...	...	...	...	2	..	..	...	..	....	2
Notices to clean slaughter-houses	...	...	...	...	...	1	..	..	..	...	..	....	1
Premises disinfected	...	...	...	...	...	...	..	..	3	2	..	....	5
Streets and gutters disinfected	...	...	...	...	..	...	..	..	..	19	..	....	19
Premises fumigated	...	...	...	...	...	...	..	..	3	2	..	....	5
Coal oil accidents reported	...	...	...	...	...	...	..	1	..	1	..	....	2
Cases of small pox	...	...	...	...	...	...	..	..	..	1	..	....	1
Casss of yellow fever	...	...	...	...	...	...	..	..	..	...	.	....	....
Specimens of milk examined	5	5	5	5	5	21	17	18	5	5	4	....	95
Daily water guage (feet below the surface)	...	...	...	...	3	2	2-2	2-5	3	3-2	4	3-9	....
Daily guage of river (feet below high water mark of 1862)	..	...	...	...	3	4	8	12	12	13	13	12-5	....

The apparent discrepancy between the "Notices Served," and the number of "Nuisances Found," is explained by the fact that very often one person is owner of, or agent for, several premises, one notice serving to cause the abatement of several nuisances.

THE MILK SUPPLY.

During the past year it devolved upon me to make analyses

of a large number of samples of milk, as sold upon the streets from milk carts.

Forty-five specimens were thus examined, and showed, in a large number of the specimens, an addition of water, varying from twenty-five to forty-five per cent.

Seven of the vendors of this milk adulterated with over twenty-five per cent. of water, were prosecuted and compelled to pay the legal fine and costs of court.

Twenty-nine specimens of pure milk were examined, at stated intervals during the year, with the following result:

Degree of lactometer 17.13x
Percentage of cream 13.72x

NOTE.—The Lactometer used is so graduated as to be at the mark O° for pure water, and in pure Orange County milk stand at 20°.

SMALL POX.

On the 30th of October, information was received at this office of a case of small pox having been introduced into the city from Germany. Upon investigation, it was ascertained that the case was bronght here on board the steamship "Frankfort," which had been twenty-two days on her trip from Bremen.

As soon as the vessel was landed the case was conveyed in a close carriage to his residence, which was isolated.

At this time, when I took sanitary charge of the case, the appearance of the pustules showed the disease to have been about six days in existence. No one was allowed to communicate with the patient except the nurse and attending physician. The inmates of the house were advised to be vaccinated, the room was kept well ventilated and disinfected.

After convalesence was established—(as soon as the crusts had fallen off)—the bed and bed clothes, together with the clothing worn by the patient while sick, were destroyed in the grate of his room, by burning. Nothing of a contagious nature was permitted to leave the room. The room was then fumigated with chlorine gas, and the gutters, drains, back-yards, etc., were disinfected with copperas and carbolic acid.

By these means, the spread of the disease was prevented, no other case having occurred.

I believe that if the first cases of small pox are treated properly, in a hygienic and sanitary point of view, an epidemic of small pox can be prevented.

YELLOW FEVER.

No well marked case of yellow fever has occurred in this district.

There were two suspicious cases reported. In these cases the premises, yards, etc., were fumigated and disinfected in the same manner as in the case of small pox.

The discontinuance of slaughtering animals at the Crescent City Slaughterhouse, on the right bank of the river, has abated a great nuisance, from which the inhabitants living in the lower part of the district suffered.

TRICHINÆ.

One hundred and fifty-five specimens of pork were examined microscopically for trichinæ, with negative results. No specimen was found parasitic. These specimens were procured at the Crescent City Slaughterhouse.

DRAINAGE.

This district can be thoroughly drained by having the canals now in existence kept properly open, which has not been done for the past five or six years. The consequence is, that whenever a heavy rain falls, the back part of the district is submerged by water, so that it is impossible for the inhabitants living in that vicinity to go to and from their residences.

STREETS.

In this district none of the streets are paved. In rainy weather they are converted into mere beds of mud, which become almost impassable.

I would respectfully recommended that the main street, leading up and down the coast, along the levee, be paved or mac-

adamized, so as to afford better facilities for the passage of vegetable, milk, beef carts, etc.

A heavy tax is imposed upon these persons, and they should receive some consideration at the hands of the Administrator of Improvements.

Report of Schools and School Buildings in the Fifth District.

Name of School.	No. scholars.	Size.	Ventilation.	Privies.		Condition of school building.
				Nature.	Condition.	
Vallette, colored...	161	Large.	Good.	Vault.	Filthy.	In bad repair.
Tunisburg, colored.	14	Small.	Good.	Vault.	Filthy.	In bad repair.
Cut Off, colored....	41	Small.	Good.	Vault.	Filthy.	New build'g needed
Freetown, colored..	95	Small.	Good.	Vault.	Good.	Too small.
Fourth Street Gretna, colored.....	91	Large.	Good.	Vault.	Good.	Good.
Chestnut, white...	193	Small.	Bad.	Vault.	Good.	Too small.
Lafayette Gretna, white.....	69	Large.	Good.	Vault.	Good.	Good.

It will be seen by the foregoing table that a large proportion of the school houses in this district are unfit for the purpose for which they are designed.

VACCINATIONS OF PUBLIC SCHOOLS.

I have carefully examined the scholars of all the public schools in reference to their protection from small pox.

The following table shows the result of these examinations, and the number of vaccinations I have performed:

Name of School.	Previously vaccinated.	Had sm'l pox	Vaccinated.	Total.
Vallette, colored.....	83	35	43	161
Tunisburg, colored.....	5	2	7	14
Cut Off, colored.....	10	8	23	41
Freetown, colored.....	31	11	53	95
Fourth Street Gretna, colored.....	45	11	35	91
Chestnut, white	132	25	36	193
Lafayette, white.....	47	4	18	69
Total.....	353	96	215	664

It will be seen that out of six hundred and sixty-four children examined, two hundred and fifteen *were* entirely unprotected from small pox.

At present the schools are well protected, with the exception of twenty scholars who were absent during my visits to the schools. I visited some of the schools as often as three times.

I have had the services of but one Sanitary Officer during the past year. The district is large and the area so great that it requires a large amount of labor to properly inspect all premises therein. While making the general inspection this year, the officer was obliged to travel four miles each day before commencing work.

Respectfully submitted,

CHAS. P. AMES, M. D.,

Sanitary Inspector.

Report of Sanitary Inspector, Sixth District.

THOMAS D. WORRALL, M. D.

OFFICE SANITARY INSPECTOR, SIXTH DISTRICT,
NEW ORLEANS, December 31st, 1871.

C. B. WHITE, M. D., *President Board of Health, State of Louisiana:*

Sir: I beg leave to present my report of the work done in this district for the past year.

General inspections	3117
Houses built of wood	2370
" " " brick	40
Roofs shingled	1620
" slated	758
" tiled	6
" covered with zinc	1
" " " boards	25
Unoccupied dwellings	140
Vacant grounds	627
Premises occupied as gardens, orchards, lumber and brick yards	80
Premises on which animals are kept	430
" with privies in good order	1912
" " " full	441
" without privies	57
" supplied with water by cisterns	2340
" " " " " wells	742
" " " " " neither	50

I present the following tabulated report of the work done in the district for the past year:

Table of Aggregate Work.

NATURE OF	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Inspections made	...	...	...	133	623	736	333	413	344	310	15	210	3117
Reinspections	...	2	6	24	186	288	185	59	60	93	72	31	1006
Nuisances found requiring abatement	...	1	...	1	7	9	9	7	2	3	3	3	45
Notices to empty vaults	...	...	...	20	152	117	64	43	24	20	1	1	441
" rebuild "	...	...	...	...	6	3	3	...	...	...	...	...	12
" repair "	...	...	...	...	1	...	1	...	...	...	...	...	2
" disinfect "	...	...	...	...	7	14	2	1	5	8	...	...	37
" clean premises	...	1	3	4	19	29	9	5	8	34	3	34	149
" fill lots	...	...	...	...	1	...	...	...	17	4	1	...	23
" remove hogs	...	...	...	...	2	4	...	...	...	...	...	...	6
" supply water	...	...	...	...	6	3	2	...	...	...	...	...	11
Premises disinfected	...	...	...	...	...	...	...	...	2	...	...	...	2
Cases of yellow fever	...	...	...	...	...	...	...	...	2	...	...	...	2
Persons reported for non-compliance	...	...	...	...	...	4	2	...	...	...	6	...	12
Inspections of cow stables	60	60	60	56	56	56	56	52	52	64	52	56	680
Vaccinations	71	156	76	16	8	4	...	...	...	...	...	...	331
Specimens of milk sent to Board of Health for analysis	...	...	...	4	6	...	...	...	...	...	...	...	10
Other notices, not classified	...	...	...	1	1	...	...	...	...	...	...	...	2

Respectfully submitted,

THOMAS D. WORRALL, M. D.,

Sanitary Inspector.

Secretary's Mortuary Report.

OFFICE BOARD OF HEALTH,
STATE OF LOUISIANA.

To the Members of the Board of Health:

I have the honor to submit the following Annual Report of Interments in the city of New Orleans, during the year 1871.

The report is carefully compiled from the weekly returns made to this office, by the sextons of the twenty-five different city cemeteries.

This report, as heretofore, includes the still-born. This is unfair to the reputation of the city for healthfulness, as it adds considerably to the total mortality, very largely augments the number of interments of children under one year of age, and, not being customary in other cities, the inferences drawn from the comparison of these tables of mortality, as to the salubrity of New Orleans, are not only unfavorable, but are also unjust.

In future Mortuary Reports, the number of still-born children will not be included in the tables of mortality, but will be given as separate *items* of statistics.

Mortuary Report of the Board of Health of the State of Louisiana, from January 1st, to December 31st, 1871.

DISEASES.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Abscess									1				1
Abscess of the bowels											1		1
Abscess of the kidneys										1			1
Abscess lumbar								3					3
Abscess of the liver		1		1	2	1	3	3			2		13
Abscess of the lungs									1			1	2
Abscess of the pelvis											1		1
Abscess of the rectum												1	1
Albuminuria	5	1	4	4	2		1		2	3	1	4	27
Amputation												1	1
Aneurism	1						3				3		7
Aneurism of aortu	1			1							2		4
Anæmia	4	4	2	1	1	3		1		1	4	6	27
Angina							1	1			1	1	4
Angina, pectoris	1	1						2					4
Apthæ										1			1
Apoplexy	13	8	10	5	8	8	6	5	7	11	11	10	102
Asthma	4	2	2		3	1	1	1				2	16
Atrophia									2	1	1		4
Bronchitis	11	5	7	1	4	5	2	6	3		6	12	62
Bright's disease	2	2	4	2	2	1	1	4			3	1	22
Burns or scalds	5	3	2		3	1	4	1	2	1	1	4	27
Cancer	2		2	3	1	2	1	6	4	1	1	1	24
Cancer of the abdomen							1						1
Cancer of the brain						1							1
Cancer of the breast				1		1					1	2	5
Cancer of the esophagus					1								1
Cancer of the face		1	1			1						1	4
Cancer of the liver		1	1		2				1				5
Cancer of the mesentery						1							1
Cancer of the mouth			1										1
Cancer of the neck	1												1
Cancer of the nose					1	1							2
Cancer of the omentum								1					1
Cancer of the rectum				1						1			2
Cancer of the stomach			1	1		1	1	2	2	1	2	1	12
Cancer of the sternum				1									1
Cancer of the testicles				1									1
Cancer of the throat	2										1		3
Cancer of womb	3	3	2	1	1	2	3	1	2	1	3	2	24
Carbuncle							1						1
Catarrh	2	2		5	1	1	3	3	2	1	5		25
Chlorosis						2							2
Cholerine				2	2								4
Cholera				2	1	1			1	1			6
Cholera infantum			2	25	16	21	8	1	3	2	5	1	84
Cholera morbus				1	2	2	6	2	1	2		2	18
Chorea				1									1

Mortuary Report—Continued,

DISEASES.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Cirrhosis of liver	3	2	2	1	1		6	2	4	3	2		26
Coxalgia							1				1		2
Colic	2				1	1	1	1	3				9
Colic pictonum												1	1
Compression of the brain			1		1	1							3
Concussion of the brain		1	1			1							3
Congestion		1	1		1	1	1						5
Congestion of the bowels		1	2	1		1	1	2			1	2	11
Congestion of the brain	6	8	8	5	5	20	17	21	12	8	16	15	141
Congestion of the liver					1							1	2
Congestion of the lungs	3	3	2	1	2	1	1	1	3	5	2	6	30
Congestion of the stomach	2								1		1	1	5
Constipation of the bowels				1		1		1					3
Consumption	55	54	84	56	59	74	58	63	63	66	88	60	780
Convulsions, adult	2		2			2	5	1	1	3	2		18
Convulsions, infantile	19	16	13	19	14	24	21	20	8	19	19	8	200
Convulsions, puerperal			1		2			1		1	1		6
Croup	2	1	1					2		1	3	2	12
Cyanosis	1			2		1					1	2	7
Debility		3	1		2			1	1	1			9
Debility, adult	6	1	10	6	2	6	9	12	6	6	11	6	81
Debility, infantile	13	3	10	11	11	5	9	9	5	10	16	9	111
Delirium tremens	1	2		2	2	1	2	3	2	1	2		18
Diarrhœa	2	7	3	8	4	10	8	7	5	8	14	3	79
Diarrhœa, acute				1		1	1				1		4
Diarrhœa, chronic	9	5	9	11	5	8	10	10	10	7	8	10	102
Dislocation of the liver					1								1
Dislocation of the neck							1				1		2
Dislocation of the thigh			1										1
Disease of the brain	1	1	1			1						1	5
Disease of the bladder										1	1		2
Disease of the hip joint	1		1					1					3
Disease of the liver	2			3	2	1	1		2		1		12
Disease of the lungs											1		1
Disease of pregnancy								1					1
Disease of the skin									1			1	2
Disease of the spine						1	2				1		4
Diabetes		1								1	1	1	4
Diptheria		2		1			1	1	1	2	5	1	14
Dropsy	9	6	9	4	9	9	6	5	8	10	5	3	83
Dropsy of the abdomen		1	2	1	1		2	2		1			10
Dropsy of the brain		2	2	3	3	1		3	1	1	1	3	20
Dropsy of the chest				1						1			2
Dropsy of the heart	1				2			2	1	2	3	3	14
Dropsy of the lungs	1												1
Dropsy ovarian				1	2								3
Drowned	1	4	7	6	4	9	12	14	7	4	2	4	74
Dysentery	8	1	11	8	4	14	9	12	4	3	10	5	89
Dysentery, acute	1	1	1	2		1	1	1	1		1	1	11
Dysentery, chronic	6	2	5	4	4	9	3	6	2	4	6	4	55
Dyspepsia	1											1	2

Mortuary Report—Continued.

DISEASES.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Emesis							1						1
Emphysema						1				1		1	3
Emphysema of lung	2	1					1						4
Entero-Colitis		1		3	3	2	2	1	1	2	1	1	17
Erysipelas	1						4	1			1		7
Epilepsy	3	2	6	3		1	2		2		2	1	22
Extravasation of urine									2				2
Fever				1		1							2
Fever, bilious		2	1	2	1	1	4	5	6	2	1		25
Fever, catarrhal	1												1
Fever, congestive	3	3	9	6	4	14	7	18	15	8	10	5	102
Fever, gastric								1					1
Fever, hectic								2		1			3
Fever, hemorrhagic						1							1
Fever, intermittent		1		4	1	4	5	3	1	5	2		26
Fever, malarial	1	3	2			6	11	21	22	18	6	4	94
Fever, nervous								1	1				2
Fever, pernicious	1	2	3	3	4	5	8	9	13	7	2	4	61
Fever, puerperal	1	1			1	2		4		2	2	1	14
Fever, remittent	1				1	4	5	9	8	5	5	1	39
Fever, scarlet	1				2		2						5
Fever, typhoid	7	5	8	9	4	7	7	8	3	7	4	2	71
Fever, typhus		1			1			1			1		4
Fever, yellow								2	9	22	19	2	54
Fracture of clavicle			1	1									2
Fracture of leg	1		2										3
Fracture of neck			1	1		1							3
Fracture of skull	1	2	3	3	2		2	4				4	21
Fracture of spine												1	1
Fracture of vertebræ		1		1	2	1							5
Fracture of pelvis												1	1
Gangrene			1	1		2		2		1		2	9
Gangrene of face				1									1
Gangrene of lungs		1	1	1		1	3	1					8
Gangrene senile											1		1
Gastro-enteritis	9	3	3	8	4	7	8	5	1	3	3	6	60
Gout			1			1							2
Hanged					2								2
Hemorrhage	1	2	2		4	1	1			3	1	1	16
Hemorrhage from the bowels						1		1	1				3
Hemorrhage from the lungs,	3		2	1	4	1	2	3	3	1	2	2	24
Hemorrhage from the navel,	1	1			1		2		1	1			7
Hemorrh'e from the stomach,	1	2	1		1	1		1					7
Hemorrhage from the womb,	1							1					2
Hæmaturia						1							1
Heart, disease of	12	9	12	9	9	17	5	11	5	13	17	15	134
Heart, disease valvular		5	4	3	1	6	5	2	6	3	3	2	40
Heart, enlargement of	4		1		2	2	3				4		16
Hernia of the brain	1												1
Hernia, strangulated	2			1									3
Hemiplegia		2	1	1	2				1		1	1	8

Mortuary Report—Continued.

DISEASES.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Hooping cough									1				1
Hydrophobia									1			1	2
Hysteria				1					1				2
Imperforate anus		1								2	2		5
Inflammation	1				1								2
Inflammation of the bladder	1	1	3	2					1	1			9
Inflammation of the bowels	9	3	8	14	15	12	7	8	7	6	9	8	106
Inflammation of the brain	1	1		2	1	6	5	5	1	3	5	1	31
Inflammation of the chest						1			1				2
Inflammation of the heart							1	4			7	1	13
Inflammation of the kidneys					1		2			1			4
Inflammation of the liver	5	5		2	4	6	5	7	6	5	6	5	56
Inflammation of the mouth				1									1
Inflammation of the spleen											1	1	2
Inflammation of the stomach		1	3	5	2	2	5	1	4	5	2	4	34
Inflammation of spinal cord			1										1
Inflammation of the throat	1												1
Inflammation of the womb		1		1				1	1				4
Infanticide			1		1	2	1	1		1			7
Inanition	3	2		2	3	4	5	4	7	3	12	5	50
Insanity			2		2	1	1			1		1	8
Injuries	1		5	3	8	5	1	5	3	7	3	5	46
Intemperance			1	2		1					3	2	9
Incontinence of urine							1						1
Infiltration of urine						1	1						2
Intussusception of intestines	1			1			1						3
Jaundice		1				1			3				5
Killed, accidentally	1		1							1	1	1	5
Killed or murdered					1			1					2
Labor difficult			1			1				2	1	1	6
Laryngitis				2	1			1	2	1	1		8
Leucocythemia	1			1									2
Lightning				1									1
Lockjaw	5	5	2	4	4	9	10	9	9	9	8	5	79
Lumbago			1										1
Marasmus, adult	1	1	1	1	1	2		1	3	2	1	1	15
Marasmus, infantile	7	3	12	15	15	23	17	14	10	10	16	4	146
Measles				2	1		6	1		1		1	12
Meningitis	14	13	16	11	15	17	5	8	7	4	5	2	117
Meningitis, cerebro-spinal				2		3			1	3		2	11
Myelitis		1											1
Neuralgia											1		1
Old age	10	7	7	5	9	4	5	2	4	10	8	15	86
Paralysis	3		4	2	1		4	2	4	1	6	3	30
Paraplegia	1			2	1	1							5
Peritonitis	8	3	4	1	5	3	2	6	2	6	6	6	52
Pericarditis		1	1	2	1	2		3	1	1		2	14
Pleurisy	1		1	2			2		2	1	1		10
Pneumonia	35	29	48	18	20	5	6	7	14	5	18	36	241
Pneumonia, pleuro	5	6	4	1			1		1		1	1	20
Pneumonia, typhoid		1	1	2		2				1	1	2	10
Poison	1		1				2	3	2	1	1	1	12

Mortuary Report—Continued.

DISEASES.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Prolapsus uteri						1							1
Premature birth	1	2	6	3		7	1	9	9	6	7	2	52
Pyemia		2	3			1					2	1	9
Rachitis					1								1
Retention of urine						1					1		2
Rheumatism	1			1		2			1		2		7
Roseola				1									1
Rupture of bladder												1	1
Rupture of the heart					1								1
Rupture of the urethra						1							1
Rupture of the uteris							1					1	2
Rupture of the veins								1					1
Stricture of the bowels							1						1
Stricture of the esophagus							1						1
Stricture of the pyloris		1											1
Stricture of the urethra	1												1
Scrofula	1						1	2			1	1	6
Scurvy							1		1			1	3
Small pox		2											2
Snakebite					1								1
Softening of the brain	3	2	2	2	3	3	1	3	2	2	2	3	28
Softening of the spinal cord	2						1						3
Spina Bifida								1					1
Spasm of glottis				1									1
Still-born	34	34	34	31	33	50	34	41	34	37	56	46	464
Strangulation				1									1
Suffocation	1	2	1					2	7	3	4	1	21
Suicide	1			1		3	2	2		1	2	2	14
Sunstroke						1	4	2	1				8
Syphilis	1		3										4
Syphilis, secondary					1					1			2
Syphilis, tertiary	2			2	1	1		2			4	2	14
Tapeworm					1								1
Tabes mesenterica		1	2	1	3	4	3		1	2			17
Tabes dorsalis						1					1		2
Teething	3	3	1	10	8	14	18	8	10	3	7	3	88
Tris nacentium	24	10	23	13	9	18	23	37	18	15	25	19	234
Tuberculosis	1	9	9	6	5	1	1	6	6	4	7	1	56
Tumor of abdomen							1						1
Tumor of brain										1			1
Tumor of ovary					1					1			2
Thrush									1				1
Ulceration			1						1				2
Ulceration of bones									1				1
Ulceration of the bowels	1							2				1	4
Ulceration of the stomach			1					1	1				3
Ulceration of the throat			1								1		2
Ulceration of the womb										1			1
Uraemia	1	1						2		2	1		7
Unknown	1		3			1		3	1	1		2	12
Wounds	1	1		1	2			1		1	1		8

Mortuary Report—Continued.

DISEASES.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Wounds, gunshot	4	3	2	2	1	2	2	2	2		3	3	26
Not stated	3	10	6	4	6	8	2	6	2			4	51
	477	381	525	471	444	585	522	592	485	478	624	475	6059

COLOR.

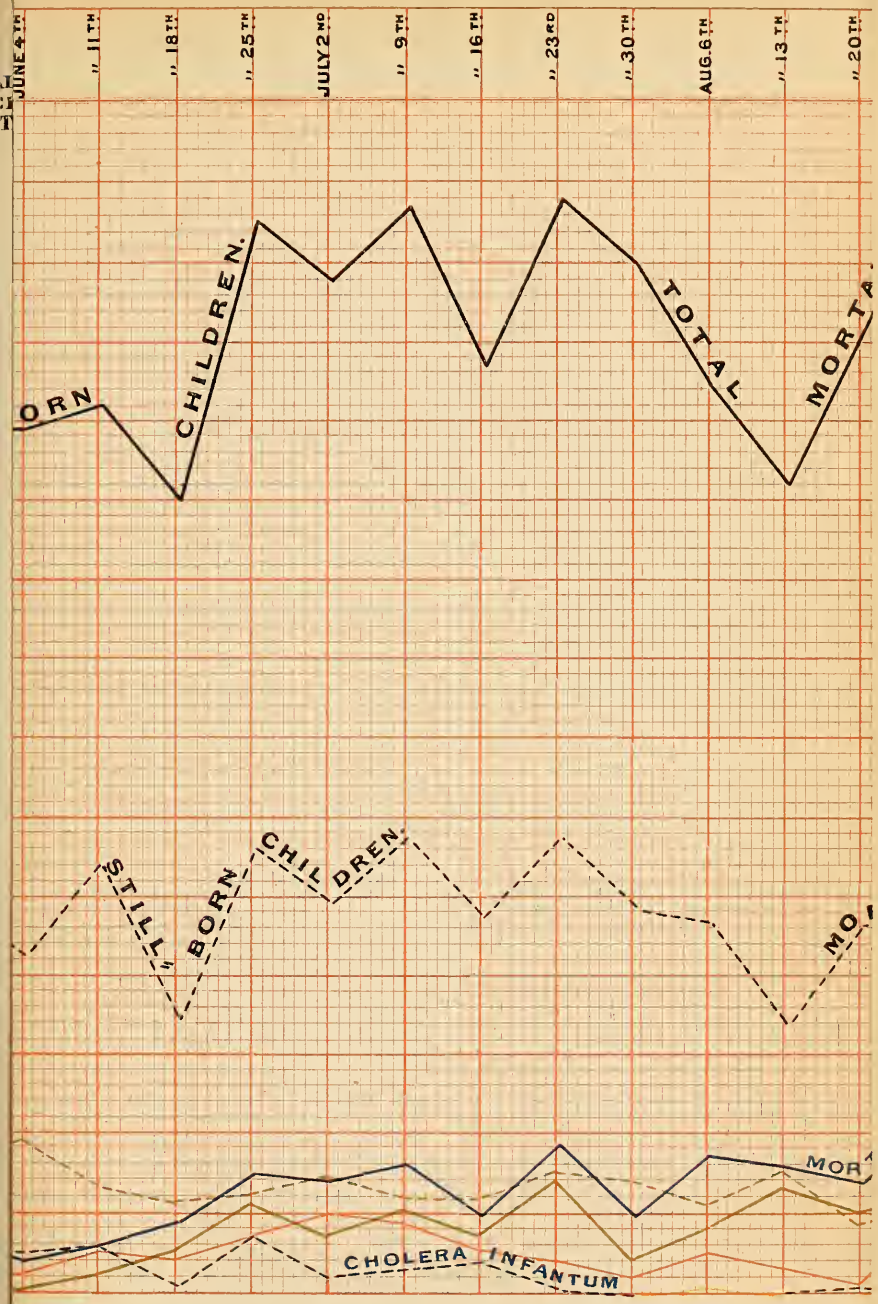
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
White	288	243	305	283	256	360	318	380	308	323	423	295	3782
Black	109	68	134	108	117	139	122	139	115	104	126	108	1389
Mulattoes	73	59	63	63	50	60	59	66	55	45	68	65	726
Not stated	7	11	23	17	21	26	23	7	7	6	7	7	162
Total	477	381	525	471	444	585	522	592	485	578	624	475	6059

SEX.

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Males	291	237	315	283	247	330	312	319	298	267	354	277	3530
Females	184	140	203	184	194	248	208	267	186	209	264	194	2481
Not stated	2	4	7	4	3	7	2	6	1	2	6	4	48
Total	477	381	525	471	444	585	522	592	485	478	624	475	6059

AGES.

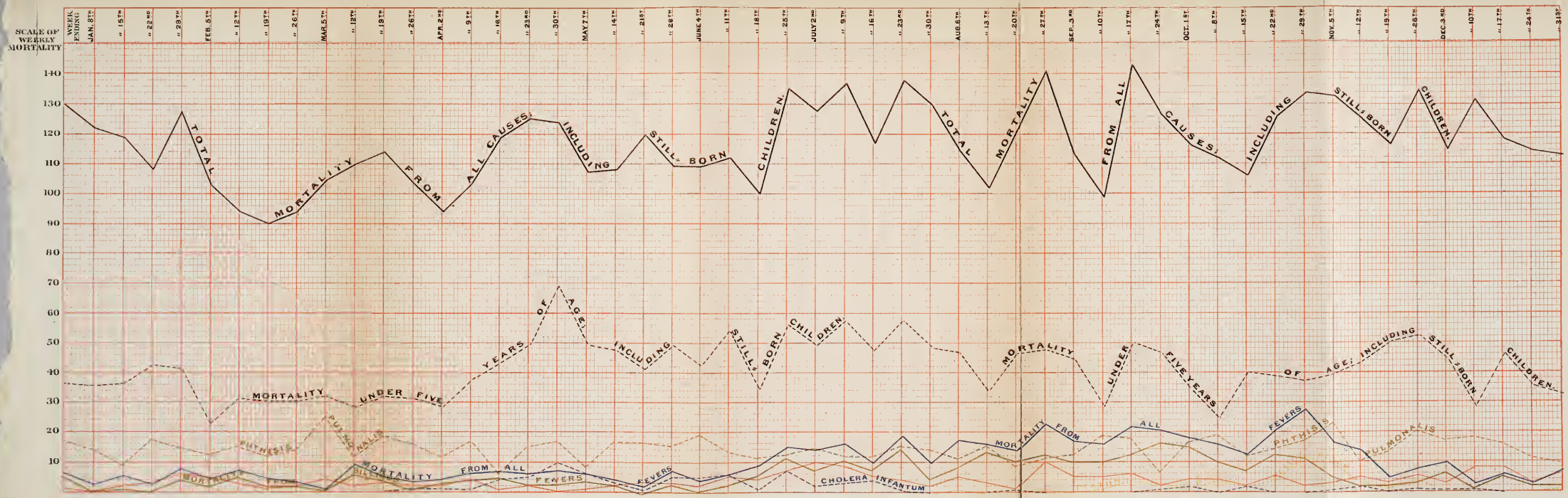
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Under 1 year	120	85	110	149	145	160	151	164	127	107	170	108	1596
From 1 to 2 years	17	13	24	32	28	53	34	35	22	18	32	16	324
From 2 to 5 years	15	15	17	16	12	20	25	17	9	15	26	17	204
From 5 to 10 years	10	13	13	6	5	14	16	8	9	9	14	9	126
From 10 to 15 years	8	5	8	6	12	15	13	15	7	1	11	7	108
From 15 to 20 years	12	6	15	13	7	19	14	18	13	11	11	14	153
From 20 to 25 years	26	21	34	24	20	28	31	29	30	39	28	26	336
From 25 to 30 years	32	26	29	21	17	23	28	39	32	47	46	30	370
From 30 to 40 years	64	58	78	44	53	56	62	73	73	68	70	54	753
From 40 to 50 years	54	47	59	37	44	60	48	74	57	51	75	61	667
From 50 to 60 years	46	31	44	37	37	46	37	47	37	38	56	53	509
From 60 to 70 years	23	26	30	26	28	37	21	29	25	17	32	26	320
From 70 to 80 years	16	6	15	15	13	17	14	14	18	12	10	16	166
From 80 to 90 years	8	6	10	4	3	5	8	5	6	2	8	9	74
From 90 to 100 years		2	1	1	1			6		1		4	16
100 years and upwards	1	1	2	2	2	1	1		1	3		3	17
Unknown	25	20	39	38	17	31	19	19	19	39	35	22	320
Total	477	381	525	471	444	585	522	592	485	478	624	475	6059



DDEN, LITHOGRAPHER & PRINTER, 73 CAMP ST, NEW ORLEANS.

L BORN DURING THE YEAR 464. — AVERAG

THE COURSE OF THE TOTAL MORTALITY, AND THE CHIEF FATAL DISEASES, IN NEW ORLEANS DURING THE YEAR ENDING DECEMBER 31ST 1871.



JOHN W. MADDEN, LITHOGRAPHER & PRINTER, 73 CAMP ST, NEW ORLEANS.

TOTAL NUMBER OF CHILDREN STILL BORN DURING THE YEAR 464. — AVERAGE 8.92 † PER WEEK.

Mortuary Report—Continued.

COUNTRIES.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Africa				2			1				2	1	6
Austria			1	1	1			2	1		1	2	9
Belgium										1			1
British America				1									1
Canada			1	1	2	2		1	1	1	2		11
China			2						2	1	1		6
Denmark	1					1	1	1		1	1		6
England	6	6	4	6	12	11	4	5	5	9	9	9	86
France	13	12	26	22	14	18	18	23	18	26	26	15	231
Germany	36	30	31	19	17	30	38	49	40	37	39	39	405
Holland		2									1		3
Ireland	48	42	52	38	38	53	46	64	40	50	54	44	569
Italy	6	3	5	3	2	7	3	3	2	9	4	5	52
Madeira	1				1		1	1			1		5
Malta										2	2		4
Mexico	1	4	1		1	1	1	1		1	1		12
Norway					2				2		1		5
Persia												1	1
Poland					1	1				2			4
Portugal	1		1					1		1			4
Prussia	1	2		3			3	1	1	1	4	4	20
Russia		1		1	1		1	1					5
Sea	1										1		2
Scotland	3	4	1		2		2	4	2	1		2	21
South America				1									1
Spain	2	4	3	1	2	2	1	1	1	4	3	3	28
Sweden	2			1		3		2	1	1	2	1	13
Switzerland	2	2	2	1		1		5	1	2	3	2	21
United States	312	247	361	344	329	423	380	416	384	307	450	332	4285
Unknown	1							3		1			2
Wales	1		1					2					3
West Indies	5	2	5	1	2	5	4	2	1	2	3	8	40
Not stated	24	9	48	25	17	27	18	8	19	18	13	7	233
Total	477	381	525	471	444	585	522	592	485	478	624	475	6059

Number interred from public institutions 930
" " on certificates of Coroners 933
" " " " " Midwives 60

It will be seen by the foregoing table that the whole number of interments during the year 1871 was six thousand and fifty-nine (6,059), against seven thousand three hundred and ninety-one (7,391), total mortality for the year 1870, including the stillborn children in both years. Deducting the stillborn, four hundred and sixty-four (464), there remains a mortality of five thousand five hundred and ninety-five (5,595)—the lowest mortality for any year since 1868, at which time the city contained but four districts, with a population of about eighteen thousand less than the population since the admission of the Fifth and Sixth Districts.

The number of diseases not stated is still large, a fact occasioned by the carelessness of some physicians in neglecting to use, or properly fill, the blank certificates furnished from this office.

There were nine hundred and thirty-three (933) interments on certificates of Coroners, and sixty (60) on those of midwives.

Nine hundred and thirty (930) interments were made from public institutions.

Conceding the population of the city to be the same as in 1870 (191,512), we have a death rate of one to every 34.5 inhabitants.

The following table shows the number of deaths from leading diseases for the last five years:

Comparative Statement of Deaths from the Principal Diseases in the City of New Orleans during the five years—1867 to 1871—inclusive.

DISEASES.	1867	1868	1869	1870	1871
Albuminuria	9	10	17	25	27
Apoplexy	91	72	85	124	102
Bronchitis	84	71	81	89	62
Bright's disease	9	14	18	17	22
Consumption	671	632	684	757	780
Cancers	63	79	90	101	90
Cholera, infantum	100	85	56	65	84
Congestion of the brain	160	91	108	99	141
Delirium tremens	23	22	13	22	18
Diptheria	31	16	19	19	14
Fever, billious	45	29	12	35	25
Fever, congestive	278	120	118	141	102
Fever, pernicious	255	87	110	100	61
Fever, nervous	13	17	5	4	2
Fever, intermittent	51	30	32	27	26
Fever, remittent	110	36	36	51	39
Fever, puerperal	11	9	20	19	14
Fever, scarlet	24	14	13	44	5
Fever, typhoid	119	68	63	80	71
Fever, typhus	23	5	5	13	4
Fever, yellow	3107	3	3	587	54
Heart disease	121	100	171	249	190
Lockjaw	128	104	134	119	79
Tris nascentium	246	159	136	186	234
Measles	2	1	217	23	12
Pneumonia	285	235	323	320	271
Premature birth	52	63	113	110	52
Small pox	40	14	137	528	2
Softening of the brain	23	25	33	31	28
Sunstroke	6	1	4	6	8
Stillborn	510	505	408	449	464
Syphilis	12	9	9	35	20
Teething	107	56	63	78	88
Gunshot wounds	3	34	25	15	26
Total deaths from all causes, less stillborn	9586	4838	5593	6942	5595

The total number of deaths from consumption in this city for the last eight (8) years is fifty-seven hundred and eighty (5,780), averaging seven hundred and twenty-four (724) deaths from this disease each year, or about four deaths to every one thousand (1,000) inhabitants.

S. C. RUSSELL, M. D.,
Secretary Board of Health.

Report of the Treasurer.

OFFICE BOARD OF HEALTH,
STATE OF LOUISIANA.

To the Members of the Board of Health :

SIRS: I have the honor to submit the following report of the receipts and disbursements of moneys belonging to the Board during the year 1871.

There has been received from the several Quarantine stations during the year the sum of twenty-five thousand one hundred and nineteen dollars and fifty cents (25,119 50); and from the sale of State warrants (appropriation by Legislature of 1871), the sum of sixteen hundred and thirty dollars ($1,630).

The Board has hired, to meet its current expenses, and is still liable for, the sum of eleven hundred and sixty-three dollars and fifty cents.

It will be seen by the accompanying report, that the amount of cash on hand January 1st, 1871, was seven hundred and eighty-five dollars and ten cents.

The Quarantine station at the Rigolets has afforded nearly no revenue to the Board, in consequence of a resolution by the same to exact no Quarantine fees of vessels via that station, except those coming from ports to the eastward of Mobile.

The expense of maintaining the Mississippi station has been unusually large, in consequence of the damage sustained from the storm of October 3d, 1871, when all the supplies then on hand were destroyed, and the buildings at the station so severely damaged as to entail an *immediate* expenditure of several hundred dollars to render them habitable.

In consequence of the large amount of sanitary work performed by the Sanitary Inspectors, no inconsiderable amount of expenditure has been necessary to properly carry on the work, in furnishing the necessary blank books, notices, blanks, etc.

The liabilities of this Board amount to about eighteen hundred dollars.

Treasurer of the Board of Health in account with the State of Louisiana.

DR.

To cash on hand January 1st, 1871, (appropriation funds, $9 01, current funds, $776 09)... .....$	785 10	
To Quarantine drafts on hand January 1st, 1871.....	208 95—$	994 05
To cash received from fees on vessels *via* Mississippi station, as per rolls.	23,624 50	
To cash received from S. S. St. Louis, hospital charges at station.....	70 00	
To cash received from Brig Margaret, Quarantine fees *via* Mississippi station.....	10 00—	23,704 50
To cash received from fees on vessels *via* Atchafalya Quarantine station, as per rolls.....	1,160 00—	1,160 00
To cash received from fees on vessels *via* Rigolets station, collected at station.....	210 00	
To cash received from fees on vessels *via* Rigolets station, collected at Basins.....	45 00—	255 00
To cash received from sale of five State warrants ($2,500), appropriation by Legislature of 1871; sold at 53 per cent discount.....	1,175 00	

To cash received from sale of two State warrants ($1,000), balance of appropriation by Legislature of 1871; sold at 54½ per cent discount.....	455 00—	1,630 00
To cash hired to meet current expenses of Board.....	1,163 50—	1,163 50
Total amount received..... ...		$28,907 05

CR.

BY MISSISSIPPI STATION.

Paid salary of Resident Physician from January 1st to December 31st....	$ 5,000 00
Paid salary of Assistant Physician, from January 1st to December 31st.	2,000 00
Paid wages of employees at Station, from January 1st to December 31st.	3,429 34
Paid for groceries and provisions for Station.....	1,977 77
Paid for fuel and lights for Station....	351 69
Paid freight on supplies and materials for repairs to Station	167 87
Paid for furniture, bedding, etc., for Hospital at Station.....	151 25
Paid for hardware supplies for Station..	106 52
Paid for drugs, medicines and disinfectants for Station.....	79 54
Paid for materials and labor for repairs at Station.....	192 21
Paid for twelve coffins for Hospital at Station	48 00
Paid for stove for use of Station.....	42 50
Paid T. Buras services as small pox nurse at Hospital.....	39 00
Paid for one clock for Station.....	10 00
Paid incidental expenses at Station...	14 00

Paid for towing Bark Mary Pratt to Quarantine Station and return to city.....	568 50	
Paid Sheriff fees for removal of Bark Mary Pratt to Station.....	42 50	
Paid for piloting Bark Mary Pratt to Station and return.....	40 00	
Paid for services of laborers in removing Bark Mary Pratt to Station and return.....	24 50—	14,285 19

BY RIGOLETS STATION.

Paid salary of Resident Physician, from June 15th to October 1st, at $10 per day.....	1,080 00	
Paid wages of employees at Station, from June 15th to October 1st....	582 69	
Paid wages of Collectors at Old and New Basins, from October 15th to September 30th.....	222 50	
Paid Hill & Veazie for lamps, oils, etc., for Station.....	15 80	
Paid Louis Bernos, paints for boat at Station	8 90	
Paid Cassidy and Miller, bunting for Station	6 80	
Paid S. S. St. Mary, freight on sundries to Station.....	6 25	
Paid Woodward & Wright, 1 pair oars for boat at Station.....	3 90	
Paid McGibbon & Co., bedding for Station	2 80	
Paid Pickles & Albers, medicines.....	3 50	
Refunded to Schooner L. B. Wakeman, Quarantine fees.....	7 50—	1,940 64

BY ATCHAFALYA STATION.

Paid salary of Resident Physician, from May 1st to October 31st, 1871, at $200 per month	$1,200 00	
Paid Wages of Oarsman at Station	81 00	
Paid Louis Bernos, paints for boat at station	10 05	
Paid Freight on boat to station	7 50	
Paid Anchor Store, sundries furnished station	5 55	
Paid Cassidy & Miller, bunting for station	4 00	—$1,308 10
		$17,533 93

BY GENERAL EXPENSES.

Office Expenses:

Paid salary of President, from January 1st to December 31st	$2,000 00
Paid salary of Secretary and Treasurer, from January 1st to December 31st	2,000 00
Paid salary of Clerk, from January 1st to December 31st	1,250 00
Paid salary of Attorney of Board, from January 1st to December 31st	600 00
Paid services of Porteress, from January 1st to December 31st	227 50
Paid services of Messenger, from January 1st to December 31st	143 50
Paid rent of office of Board and Laboratory, from January 1st to December 31st	900 00
Paid A. S. Barnes & Co., New York, scientific books for library of Board	131 82

Paid John W. Madden, stationery for office, Sanitary Inspector's offices and Quarantine Stations, during the year.....	244 10
Paid for printing 1000 copies Annual Report of 1870....	370 75
Paid for printing inspection books and blanks for Sanitary Inspector's offices...	185 00
Paid for printing notice books for Santary Inspector's offices	120 00
Paid for printing blank certificates of vaccination.....	102 50
Paid for printing blank Mortuary Reports, etc	67 50
Paid for printing blank Sexton's Returns, Physician's Certificates, etc.,	57 50
Paid for printing nuisance ordinances, circulars, etc	49 50
Paid for printing blanks, drafts, permits, etc., for Quarantine Stations,	46 00
Paid for printing report on dangerous oils	60 00
Paid for diaries for six Sanitary Inspector's offices	18 00
Paid for printing and binding book of . permits, removal of bodies.....	15 00
Paid for map of Louisiana.....	10 00
Paid for printing blank permits to open vaults	7 50
Paid for printing contagious disease ordinance	7 50
Paid for binding scientific papers and lettering books	7 00
Paid for one letter book for offic e.....	6 00
Paid Heath, Lara & Heath, furniture for office.....	47 50
Paid rent of box in vault of Louisiana Savings Bank, 1 year.....	30 00

Paid for fuel for office	20 00	
Paid subscriptions to scientific papers	8 00	
Paid subscriptions to city papers	52 00	
Paid for advertising in city papers...	47 50	
Paid E. Suter, painting.....	14 00	
Paid for telegraphing to Quarantine Stations and neighboring cities..	12 25	
Paid expenses of members of Board to and from Mobile, on business for Board	12 00	
Paid ice for office	12 75	
Paid for water supply for office, 1 year from Oct. 1st, '71	10 00	
Paid for water cooler for office	5 25	
Paid for emptying water closet	5 00	
Paid for cab hire, members of Board inspecting drainage canals	5 00	
Paid rent Post Office Box, 1 year.....	8 00	
Paid Postage during the year.....	30 74	
Paid Internal Revenue Stamps during the year.....	10 60	
Paid Stamped Newspaper Wrappers...	17 05	
Paid Stamped Envelopes.....	5 00	
Paid extra copies city papers	5 50	
Paid express charges, parcel express ..	5 15	
Paid repairing seal .. ....,.....	3 00	
Paid photograph of Mr. Pierce, late member of Board	4 00	
Paid court costs, sundry cases during the year.....	67 00	
Paid interest on sums hired during the year	79 38	
Paid incidental expenses at office during the year	89 55—	$9,232 99

OLD CLAIMS.

Paid balance of claim of Peter Smith vs. Board.....	108 29	

Paid claim of J. B. Picuolio vs. the Board	121 17	
Paid Sheriff's fees, old claims, against the Board	18 30	
Paid Court costs, clerk's fees, old claims against the Board	56 05—	303 81

LABORATORY.

Paid for chemicals, etc., during the year	150 65	
Paid J. Ott, making shelving and furnishing material for same	49 00	
Paid E. P. Benjamin, New York, chemical instruments	34 72	
Paid gas fixtures for laboratory and office	34 01	
Paid New Orleans Gas Light Company for gas furnished laboratory and office during the year	126 50	
Paid for samples of milk furnished for analyses	20 85	
Paid for platinum weights for laboratory	12 25	
Paid for fittings for laboratory	6 65	
Paid expense collecting gas for analysis	7 20	
Paid for 1 dozen towels for laboratory	3 00	
Paid for lamps and samples of coal oil for experiments	8 50—	453 33

SANITARY INSPECTORS' OFFICES.

Paid rent of Sanitary Inspector's office, First District	180 00
Paid for fuel for office	5 50
Paid for incidental expenses at office	13 85
Paid rent of Sanitary Inspector's office, Second District	125 00
Paid for furniture for same	22 00
Paid officer L. D. Allen, extra night services	10 00

Paid rent of Sanitary Inspector's office, Third District	116 00	
Paid for furniture for same	11 75	
Paid for fuel and sundries for same	7 20	
Paid rent of Sanitary Inspector's office, Fourth District	120 00	
Paid for furniture for same	8 00	
Paid for stationery for same	16 00	
Paid incidental expenses for same	21 88	
Paid rent of Sanitary Inspector's office, Fifth District	120 00	
Paid for fuel for same	5 00—	782 18
By Quarantine drafts on hand, uncollected	308 95	
By cash on hand	291 86—	600 81
		$28,907 05

S. C. RUSSELL, M. D.,

Treasurer of Board of Health.

We have this day examined the books, vouchers and papers of the Board of Health for the year ending December 31st, 1871, and have found the same to be correct.

New Orleans, January 20, 1872.

H. MAYNE,

CHAS. A. BENEDICT,

State Inspectors under Section 93, *Act No.* 42 *of* 1871.

[APPROVED.]

JAMES GRAHAM,

Auditor.

APPENDIX.

ANALYSIS OF GOLDEN SYRUP.

NEW ORLEANS, September 11, 1871.

Dr. C. B. WHITE, President Board of Health:

Sir.—The following is the result of an analysis of three samples of golden syrup sent to the Board of Health for examination, being supposed to contain substances injurious to health:

The sample marked No. 1 was of a bright, clear color, and pleasant to the taste, and was found to consist of a mixture of cane syrup and a syrup made from starch, in the proportion of two parts of cane syrup to three parts of starch syrup.

This sample contained only a trace of sulphate of iron, less than one grain to the gallon, and five grains of free sulphuric acid to the gallon.

Sample No. 2 consisted of a mixture of one part of cane syrup to six parts of starch syrup. This sample had a clear, reddish brown color, and a slightly burnt taste and smell.

It contained eighteen grains of sulphate of iron and twenty-one grains of free sulphuric acid to the gallon.

Sample No. 3 consisted of a mixture of one part of cane syrup to three parts of starch syrup, and contained in a gallon eleven grains sulphate of iron and twenty-seven grains free sulphuric acid.

There were no metallic substances or mineral acids contained in the above samples, excepting sulphate of iron and sulphuric acid.

These syrups are largely and cheaply made in New York by boiling corn or potato starch in water containing from two to four per cent. of sulphuric acid, which in a few hours transforms the starch into an equal amount of grape sugar. The sulphuric acid is then removed by neutralizing the liquid with chalk, which throws down in an insoluble form the sulphuric acid as sulphate of lime. The acid present in the syrup is what has not been removed by this process.

The sulphate of iron is derived from a part of the iron of the vessels in which the syrup is boiled, being dissolved by the free acid present in the syrup.

The sulphate of iron and sulphuric acid in the above are in such small quantities as to make it impossible for them to have any injurious effect on the system, when used for food.

The ordinary amount of syrup which might be used at a meal—about two ounces—would contain (in No. 2 syrup) about one-third of a grain of sulphate of iron, and about the same quantity of sulphuric acid.

In two ounces of No. 3 syrup there would be about one-fifth of a grain of sulphate of iron, and a little more than one-third of a grain of sulphuric acid.

The usual medicinal dose of sulphate of iron is from one to two grains, and of aromatic sulphuric acid ten to thirty drops, which contains three and a half to ten grains of pure sulphuric acid. Thus the amount which could be taken in these syrups at a meal would be about one-tenth of the usual dose of sulphate of iron and one-thirtieth of the usual dose of sulphuric acid.

A larger amount of free acid might possibly injure the teeth.

The starch syrup, when pure, so far from being injurious, is really more nutritious and digestible. All the potatoes, arrow-root, tapioca, rice, flour, etc., which is eaten, contain from fifty six to eighty-five per cent. of starch, which is transformed in the stomach and intestinal canal into grape or starch sugar before it can be absorbed into the blood and aid in nourishing the body. The grape sugar is thus, in fact, equivalent to cane sugar partly digested.

In the above analysis the grape sugar was estimated by means of Fehling's volumetric solution of tartrate of copper, and the iron by a volumetric solution of permanganate of potassa.

Very respectfully.

ALFRED W. PERRY, M. D.

Sanitary Inspector.

REPORT ON STREET CLEANING.

A. W. PERRY, M. D. *Sanitary Inspector, Third District.*

NEW ORLEANS, August 24, 1871.

DR. C. B. WHITE, President Board of Health:

Sir—I having noticed for a long time the injurious effects which result from the ill conducted and insufficient efforts of the Street Department in cleaning our streets and gutters, I cannot help sending in this communication.

In fact, instead of the present scanty efforts having a good effect, in a sanitary point of view, they actualy do harm, as can easily be shown.

At this season of the year, when the dry, hot season succeeds the rainy season, the luxuriant and low organized vegetable life which has been stimulated to growth by the moisture and heat, loses its vitality, and, together with the dead vegetable matter which has been kept from decomposition by the excess of rain, enter into that kind of decomposition which, though not particularly offensive to smell, is most fatally felt in causing, by its emanations, all the malarial diseases—congestive, remittent, intermittent and bilious fevers, and a host of other diseases which are indirectly caused or aggravated by it.

When vegetable matter is covered by, or completely soaked in water, malarious emanations are not readily given off, because the excess of water retains them by a physical attraction; and for this reason, in all hot countries the rainy season is not the sickly season. It is when the rainy season ceases that the vegetable matter dries up, and it is in passing into this dry condition that malaria is given oft, with all its evils effects.

One of the conclusions arrived at, after a long and laborious investigation by the Sanitary Commission, appointed by the City Council, of 1854, to investigate the causes and means of prevention of yellow fever, was that any upturning or exposure of the soil here, under conditions of great heat and moisture of the atmosphere as shown by a high dew point, would certainly cause or propagate yellow fever, and all excavations or digging ditches, canals, etc., should be positively prohibited during the summer and fall.

This exposure and turning up of soil highly charged with organic vegetable and animal matter of the sun, is found in nine out of ten streets in this city. The house waters and slops are thrown, or allowed to run into the gutters of the streets which are unpaved, where they remain until by the evaporation and admixture with dirt and solid garbage, they are converted into a slimy mass, green, and offensive to both sight and smell.

Reflection will convince any one that this putrefying material ought to be removed entirely; but no, it is once or twice a week scraped up out of the gutters and thrown on the surface of the street, to dry and give off poisonous malaria at our very doors. This is repeated over and over again, until the soil of our unpaved streets is saturated with organic matter, which commences to decompose every time it is wetted, as by occasional showers, and in decaying, gives off the most injurious effluvia.

All the labor expended in this exposure of slime to dry upon the streets is absolutely wasted, and positive harm is done. To be sure it pleases the public eye to transfer the filth from the gutter to the street, but it ruins the public health.

The soil of our unpaved streets, when dry, seems to be an innocent mixture of sand and clay, but it is only so in appearance. I have examined lately a number of samples of dry soil from our different streets, and found them to contain not less than fifteen (15) per cent. of organic matter, liable at any time to decompose. What more favorable natural conditions could be imagined than these, which are thus produced artificially, (though not knowingly), for the production of malarial diseases? This is the chief cause of the unhealthiness of this city.

For the last three years in this city malarial diseases (yellow fever excluded), have caused a mortality respectively, 17.5, 22 and 34 deaths in every 10,000 of population; while in Chicago the mortality from these same diseases, during the last ten years, has been less than 1.5 deaths to every 10,000 of population; while in a period of ten years before a proper system of drainage and removal of offal was introduced, the mortality in that city from malarial diseases was more than four times as great as since that time.

Louisville, Kentucky, was once a very unhealthy city, chiefly from malarious diseases, the deaths from such diseases having been as high as 46 to 10,000 of population; now, from the same cause, the deaths are about 1.9 per 10,000 of population.

The first requisite for the health of any city is the removal of refuse; and why the removal of the liquid refuse from three-fourths of all the streets in our city is not and never has been considered necessary, cannot well be imagined.

If the policing of the city be done to secure public health, let those efforts have the intelligent direction of those who are fitted by study and profession to understand sanitary conditions.

Let all filth be moved, as well from unpaved as from paved streets. If this cannot be done (and who will say so), then let them alone; do not make things worse. If nothing is done by the proper department, nature will come to our aid, after a longer or shorter time, with her great scavenger and purifier—rain.

Inactivity is not counseled, but it would be really better to to do nothing than to do harm. The Water Works should be used night and day, so far as they extend, to wash away all filth into the drainage canals and swamps, where it is less injurious than right in our midst.

The gutters in all the streets of the city are in a most filthy condition, excepting only those streets in the First District which run perpendicular to the river from Calliope to Canal, and from Canal to Esplanade, in the Second District.

Excepting the gutters of these streets, and those of the streets parallel with the river, which are paved with square block, they are nothing better than mere receptacles of liquid filth, not drains, for there is little or no drainage from them.

In conclusion, it must be said that the streets and gutters have never before been in so bad a condition and at no season is the necessity for cleanliness so great as now.

Very respectfully,

ALFRED W. PERRY, M. D.,

Sanitary Inspector.

REPORT ON PROPOSED METHODS FOR RENDERING VOLATILE HYDRO-CARBONS NON-EXPLOSIVE, AND SAFE AS ILLUMINATING FLUIDS.

NEW ORLEANS, September 15th, 1871.

DR. C. B. WHITE, President of Board of Health:

Sir: I have, at your request, made an examination into the effect of a number of patented and secret processes for rendering benzine and naptha safe as burning fluids.

Methods for making safe and cheap oils from benzine or naptha are advertised in the papers, or are offered by traveling agents at a small price. Most of these processes consist in adding to the benzine or naptha; first a solution in water of carbonate or bi-carbonate of soda, and then a solution of bi-sulphate of soda, potash, alum, or some salt which contains an excess of acid.

In a case in court, some time ago, a dealer and vender of one of these so-called "non-explosive" oils testified that the process he used was patented, and he described it as follows:

"Bi-carbonate of soda was dissolved in water and in other portions of water alum was dissolved. These mixtures were then added to the benzine or naptha and stirred, the mixture commencing to bubble or froth up; and, after standing some time, a white sediment is formed, which, he alleged, contained the explosive or dangerous matter of the benzine, and that by this treatment it was converted from a dangerous substance to a very safe one."

I performed these experiments with benzine or naptha in the Laboratory of the Board of Health, and found that a solution of bi-carbonate of soda, and of alum, mixed with benzine or naptha, caused a bubbling or frothing, and produced a sediment. I also found that the solution of bi-carbonate of soda and alum, when mixed together, without the benzine, caused the same bubbling, and produced the same white sediment, which, of course, shows that these reactions are entirely independent of and disconnected with the benzine or naptha.

The bubbling is caused by the carbonic acid gas of the bicarbonate of soda being set free by the excess of acid in the alum; the precipitate or sediment consists of pure alumina, the base of alum.

I found that some of the carbonic acid generated was absorbed by the benzine; and, in order to determine the proportion, a measured quantity of benzine and carbonic acid gas was placed in a graduated glass tube, and left in contact several hours. The benzine or naptha absorbed at a temperature of 80° Fahrenheit—70 per cent. of its bulk of carbonic acid gas.

Thinking that the carbonic acid thus absorbed might have some effect in diminishing the explosiveness or inflammability of the benzine, I tried it in an exploding apparatus, designed for the purpose, and found that the naptha or benzine, which had absorbed 70 per cent. of its bulk of carbonic acid, exploded and inflamed as readily as that which had not been treated with any chemicals, thus showing the vanity of the pretensions of rendering benzine or naptha safe as illuminating fluids.

Very respectfully,

A. W. PERRY, M. D.

REPORT ON SEWER GASES, SEWAGE AND DISINFECTANTS.

ALFRED W. PERRY, M. D.

NEW ORLEANS, November 16th. 1871.

C. B. WHITE, M. D., *President Board of Health :*

Sir:—The following is the result of an investigation undertaken at your request, into the manner, products and effects of the decomposition of the organic matters which compose the offensive black mud, or slime, which fills our gutters and draining canals.

This decomposition, goes on here at all seasons, but is most

rapid in summer, and is accompanied by an evolution of an offensive and deleterious gas, which bubbles up through the water. The amount of this gas which is given off into the air is, in the aggregate, immense.

I found, by experiment on several canals, that the average amount was at the rate of one gallon of gas from each square foot of canal surface, every twenty-four hours. This was ascertained by collecting through a funnel into a glass jar, all the bubbles which arose in an area of one square foot, and noting the time of collection. This gas is lighter than air, and is inflamable: the bubbles can easily be lighted with a match on the surface of any stagnant gutter. The gas is not of constant composition, but contains varying proportions of its constituents.

In four analyses which I have made, of different samples of this gas, in the Laboratory of the Board of Health, I found the mean composition to be—

Carbonic Acid	29 per cent.	100
Carburetted Hydrogen	66 " "	
Nitrogen	5 " "	

Offensive organic vapor—a trace.

I examined a number of specimens specially to detect sulphuretted hydrogen, which I supposed was the offensive element, but not a trace of it could be detected by test-paper wetted with an alkaline solution of oxide of lead. The animal matter, and the vegetable matter which contain sulphur, must produce some sulphuretted hydrogen, during their decomposition, but it unites, as soon as formed, with alkalies—ammonia, soda or lime, always present in sewage, forming alkaline sulphurets. These, I found to be present in abundance, in the sewer mud, by adding to it a little of a mineral acid, when there was evolved sulphuretted hydrogen abundantly, blackening the lead test-paper.

There is a very minute proportion of organic matter present which gives to sewage its peculiar odor. This has been examined by Dr. William Oding, of London, and is supposed to contain carbon and ammonia, but it has never been isolated.

ORIGIN OF GASEOUS CONSTITUENTS.

The carburetted hydrogen, which forms the principal part of the gas, is produced by the moist decomposition of vegetable and animal matter, when the air has not free access, as would be the case when submerged in water, and the less the access of air, or oxygen, the larger the amount of carburetted hydrogen formed.

The carbonic acid is due to the union of oxygen with the carburetted hydrogen, or with the carbon of the decomposing matter.

The oxygen, which all water contains, dissolved in it, in the proportion of three and one-half per cent. of its bulk, effects this oxidation.

The nitrogen and the oderiferous principle, proceed from the decomposition of the animal, or nitrogenous vegetable matter.

DELETERIOUS EFFECTS OF CONSTITUENTS OF SEWER GAS.

The carburetted hydrogen contained in sewer gas, is probably not injurious to respire in small quantities, as it exists in considerable amounts in the air of coal mines, and is breathed by the miners without injury.

The carbonic acid is, when in large proportion in the air, very dangerous to life.

By far the most injurious constituent is the offensive vapor, which the smell of stagnant canals depends upon, although the quantity is very minute, probably less than one part per one thousand.

It is the minute proportion of organic vapor, in the air of close and crowded rooms, which produces head-ache and faintness in many persons, and not so much the carbonic acid; for it was found, by Prof. Angus Smith, of London, that the air of a soda-water manufactory, which he examined, contained five parts per one thousand of carbonic acid (which had escaped from the apparatus), more than ten times the usual proportion in air, and the workmen were not inconvenienced by breathing it; while the air of a room, contaminated by the breathing of

many human beings, which contain two parts per one thousand, is uncomfortable and injurious. Further, Hammond and Gavret, in France, took air which had been used in respiration, and, after removing the carbonic acid from it, passed it into a glass jar containing small animals, which died in less than one hour from inhaling it. This shows clearly that the offensive organic vapor in the respiration, is more injurious than the larger amount of carbonic acid. The oderiferous principle of the respired air is, like that of sewer gas, very offensive and putrescible.

It is, therefore, unquestionable that the organic matter is the chief deleterious constituent in sewer exhalations.

EFFECTS OF SEWAGE EXHALATIONS.

Abundant testimony has been collected in England showing the injurious effects of the emanations from sewage.

The British medical reports trace numerous outbreaks of typhus fever to an entrance of the gas, from the sewers into the houses, through the connecting drain pipes.

In the report, for 1866, of the medical officer of the Privy Council of England, Dr. Carpenter, of the parish of Corydon, says that two cases of typhoid fever occurred in his own house, in October, 1865, from the entrance of gas from a sewer, through a defective pipe, into a room which they had been occupying; no other case occurred in the house.

In Parke's Hygiene, page 109, a violent attack of typhoid fever is reported to have broken out in Fort Lascaris, in Malta, among the soldiers, which was caused by sewer air entering the barracks through a defective drain. A case is reported in the same work, where the admission of sewer air, from a drain, caused many cases of typhoid fever in a large boarding-school.

BLUE BOOK, 1859—SECOND REPORT.

Report to J. Simon, F. R. S., *Medical Officer to the Privy Council.*

"In July, 1859, the offensive condition of the Thames excited great alarm among the public of London, and an unusual train of symptoms occurred among a great number of men employed

on the river craft. The attacks began with languor and depression, followed by nausea and head-ache, particularly severe in the temples; to these were added after, giddiness, temporary loss or impairment of sight, and mental confusion. None of the men suffered from diarrhœa—all were relieved, more or less by purgative medicines. The inquiries were extended to other men working on the steamboats, to cartmen plying at the different piers, to lightermen, and to dock laborers—nearly two hundred men being personally examined. The same symptoms were found to be very generally prevalent. Here and there a strong young fellow would boast himself free from any sickness.

* * * * * * * * * *

"A sickness of a kind unknown before to the subjects of it, contemporary with the offensive state of the river, appearing and disappearing with it, and affecting those only whom chance, or their regular occupation, exposed to the foul vapors, may with reason be attributed to the action of those vapors.

"In the year 1859, the river was at no time equally offensive. On a renewal of the inquiries this year (1859) scarce a trace of the well marked symptoms of the preceding year was revealed; men who, the year before had suffered characteristically, now declared themselves quite well."

SEWAGE DISINFECTANTS.

The process of decomposition of sewer mud, which evolves these injurious gases, may be either prevented on a small scale, or so modified on a large one, as to make it harmless to health.

To ascertain the best disinfectant, having a special regard to cheapness and efficiency, to be applied to offensive collections of gutters or sewer mud, a number of experiments were tried in the laboratory of the Board of Health, by adding to measured quantities of gutter mud, varying quantities of the ordinary disinfectants.

To measured quantities, 1000 fluid ounces of decomposing and offensive semi-fluid gutter slime were added:

One part of sulphate of iron.....No effect.

Six parts of sulphate of iron....Slight arrest of decomposition.

One part of saturated solution of sesquichloride of iron,
.....No perceptible effect.

Two parts of sesquichloride of iron,
.....Evolution of gas diminished.

Three parts of sesquichloride of iron,
.....Very much decreased, but not entirely.

One part crude carbolic acid.....No effect.

Two parts crude carbolic acid,
.....Evolution of gas very much diminished.

Three and one-half parts carbolic acid,
.....Evolution of gas entirely and permanently stopped.

The carbolic acid used is known as No. 2 in commerce, and contains forty-six per cent. of real acid.

The effect of a large amount of sulphate and sesquichloride of iron was not permanent nor entirely effective, while the effect of the three and one-half parts per 1000 of carbolic acid was entirely effective in arresting decomposition and evolution of gas.

The carbolic acid acts by its presence, and not like the mineral salts which directly combine with the products of decomposition.

The cost of the largest amounts of the above named disinfectants which were added to the sewage mud, at the present wholesale prices, is as follows:

Sulphate of iron.....One and one-half cents.
Sesquichloride of iron.....Three cents.
Crude carbolic acid.....Four mills.

It is well known that some kinds of decomposition are favored by an alkaline condition, and hindered or arrested by an acid condition of the substance decomposing, but this is not the case with sewer mud. I found in the experiments above referred to, that an amount of sulphate of iron sufficient to cause an acid reaction in the sewer mud did not arrest decomposition in the sewage.

The effect of a large amount of running water in rendering

harmless the products of decomposition, is as powerful as that of the best chemical disinfectants.

When clear water is used for flushing offensive draining canals or sewers, the effect is wonderful.

The water has not only the mechanical effect of removing decomposing matter, but the no less important one of destroying organic matter by the rapid combination with it of the oxygen, which all water holds in solution, and which it has absorbed from the air: motion of the water favors the absorbtion of oxygen from the air, so that in a running stream containing sewage the oxygen which is continually uniting with the organic matters present, is continually being replenished by the absorbtion of more oxygen from the air.

The following extracts are taken from reports by Mr. Bazalgette, Civil Engineer, of London, Dr. A. W. Hoffman and Dr. Taylor, to the British Parliament, on the sewage discharge into the Thames:

It is estimated by Mr. Bazalgette that ninety-five millions (95,000,000) of gallons of sewage are discharged each day from London into the Thames, and that the volume of water into which it is poured is fifty times that quantity, so that the dilution of the sewage in the river is about one in fifty.

According to the analysis of Professor A. W. Hoffman, the Thames water contains two and twenty-nine one hundredths (2.29) grains of organic matter per gallon; at London Bridge, nearly the centre of London, two and seventy one hundredths, showing that the immense quantity of sewage poured into the river only increases the amount of organic matter four-tenths of a grain per gallon, so rapidly is it destroyed. Below London, after a flow of a few miles, the amount of organic matter which the river has received from the sewage has decreased one-fourth.

An offensive black mud is deposited by the sewage where it flows into the river, forming mud banks, of which the above mentioned report says:

"It would appear that the black mud from the sewage contains a considerable quantity of organic matter, which is most deleterious. An immense mass of this fetid mud has ac-

cumulated in the bed and on the banks of this river, and is continually supplying to the water large amounts of soluble matter, in a state of putrescence, and contaminating the atmosphere with most offensive emanations. It is probable that the unhealthy condition of many of the towns on the sea coast is caused by deposits of this character.

"We cannot but emphatically assert that the formation of this mud deposit in the river appears to us by *far the most serious evil* which results from the discharge of the London sewage into the river. These mud banks are covered during high tide, but are exposed to the sun daily during low tide."

These remarks will exactly apply to the abundant deposits of sewage mud which fill our draining canals especially, and with the rise and fall of water in them, are exposed alternately to the influence of the sun and water.

I have quoted so largely from the English reports on the subject, as it has been more thoroughly examined by that government for a series of years, and their experience is more valuable on the subject than any other in the world.

Very respectfully,

ALFRED W. PERRY, M. D.

DRAINAGE

AND

DRAINING CANALS

IN THE VICINITY OF

CANAL STREET.

BOARD OF HEALTH,

1871.

OFFICE OF THE BOARD OF HEALTH,
159 CANAL STREET.

NEW ORLEANS, October 20, 1871.

To the Hon. Mayor and Administrators
of the City of New Orleans:

SIRS—The Board of Health have the honor to call your attention to some recommendations connected with the drainage and drainage canals of that portion of the city lying between the New and Old Navigation Canals, and Claiborne street and the Metairie Ridge.

1st. The Board recommend that the draining canal on Claiborne street, from the Old Navigation Canal to Canal street, be immediately filled up, and that the gutters of Customhouse, Bienville, Conti, St. Louis and Toulouse streets, which now empty into it, be carried across Claiborne street and discharge their contents into Galvez Canal.

The reasons for this change are—

1st. That the portion of Claiborne Canal, near the Old Navigation Canal is lower than the part near Canal street, is therefore a stagnant cesspool, a permanent nuisance, in regard to which constant and just complaints are made.

2d. The Claiborne Canal gathers the water of sewage and rainfall from the large surface contained within the boundaries of the Old Canal, the River, Canal and Claiborne streets, and throws them in upon Canal street and floods that section of the town during every heavy rain.

3d. The mode of drainage recommended, is the one in use on the upper side of Canal street. Claiborne street, on this, the upper side, has *no canal*, and the street gutters are continuous from the River to Galvez Canal. If the Claiborne street draining canal is not necessary on the upper side of Canal street, it is of course unnecessary on the lower side.

4th. Were Claiborne Street Canal filled, all necessity of retaining the present filthy, unhealthy, foul-smelling sewer in

Canal street, from Claiborne to Gavez street, would be removed, and the Board recommend that it *be filled up forthwith.*

Street scrapings could be used for this purpose, provided that the filling begin at the end near Claiborne street, and that every day the scrapings be covered with not less than fifteen inches of river sand, or other suitable material. As dwelling houses will not be built over this material, no danger to health would arise.

The Board recommend that Galvez Canal be deepened and widened, and, with Broad Street Canal, be so graded as to drain surface and sewage waters towards the draining ditch which now extends along the Old Navigation Canal from Galvez street to the Hagan Avenue draining machine.

It is also recommended that this existing draining ditch along the Old Canal be so widened and deepened, as to be competent to carry off to the draining machine all waters which would reach it, namely: the rainfall and sewage from the city, and the rainfall from the land bordering Broad street.

The value of the improvements along this canal is small, and no injury will result from the proposed change.

The earth removed in the excavations necessary to enlarge this ditch to the proper dimensions can be used to advantage in strengthening the levee of the Old Canal, or in filling up Canal street ditch.

The draining canal on Canal street, from Galvez to Hagan Avenue, is only a *sewer*, as not a drop of the surface water from all the region between Galvez street and the Metairie Ridge drains directly into it.

The flow of the rainfall and of the city sewage being provided for through Galvez Canal (widened if necessary), and the enlarged draining canal running near to, and parallel with the Old Navigation Canal, all necessity for the Canal street sewer between Galvez street and Hagan Avenue ceases to exist. It can therefore be filled with great advantage to the health of the people, to the profit of real estate owners along its sides, and to the railroad company, whose receipts would greatly increase, if a ride in their cars to the ridge was not a continual exposure to an atmosphere contaminated with the seeds of dangerous disease.

It is recommended that the Carrollton Avenue Canal drain towards the great draining canal on Orleans street, now being dredged from the Bayou St. John to the Lake, and that until said canal be finished, the waters gathered by the Carrollton Avenue Canal be conducted by temporary ditch to the reservoir at Hagan Avenue draining machine, there to be lifted out by it into the Old Navigation Canal.

The draining canal on Canal street can then be filled from Hagan to Carrollton Avenue.

Canal Street Canal, beyond Carrollton Avenue, is a blind ditch, *cul de sac*, into which no surface water directly runs. This portion of the Canal street ditch serves only as a receptacle of putrifying, noisome sewage during the many days when the draining machine is not at work.

If the previous recommendations are carried out, Canal street ditch can be filled from Claiborne street to the Metairie Ridge without disadvantage, but rather with advantage to the whole city, and with marked benefit to the health and pecuniary profit of those living along the street.

The Board is also of opinion that the extension of the Orleans Canal, as at present being carried out, will greatly injure the City Park, as a place of resort; and that it would be greatly preferable to run this extension along the Bayou St. John, and as near to it as practicable, or get possession of the Bayou St. John by suitable legislation, and use it as the great draining canal of the city.

It is also recommended that not less than two 30-inch pipes be laid down during the present cool months from the river to the Old Basin, as a current from the river would flow through them during the greater portion of the year sufficiently strong to render the contents of the Old Canal inodorous and inocuous, and to thorougly and promptly expel all the foul water into Lake Pontchartrain.

The Bayou St. John would thus lose its blackness, its horrid odors; its banks become an agreable residence and pleasure drive; the present City Park a resort which would then be reached without exposure to the penetrating, nauseating, un-

healthy, unendurable smells which now prevent our citizens from resorting thither.

The Board of Health renew their recommendation of last April in regard to "flushing" the draining ditches by water from the new Navigation Canal. The communication of Hon. G. W. R. Bayley, Civil Engineer, is appended.

When it is recollected that the surface of the water in the New Canal is never less than five or six feet above the bottom of the reservoir at the Hagan Avenue draining machine, it is easy to understand the value of the "flushing" system with a head of never less than five feet, and often wiith a head of eight feet of water.

The system of "flushing," by the abundant supply of clean water furnished, would absorb all the noxious gases present in the sewage, and the bottoms and sides of the ditches, to the great advantage of the public health, would sweep out all the black mud and other deposits from the canals, thus saving large amounts of money spent yearly in cleaning them by hand labor.

As illustrative of the value of the system of "flushing," the attention of the Honorable Administrators is invited to the extract appended from Prof. Corfield's work on the utilization of sewage, London, 1871.

To recapitulate: the Board of Health recommend—

1st. That Claiborne Street Draining Canal, from the Old Navigation Canal to Canal street be forthwith filled up.

2d. That the street gutters on Customhouse, Bienville, Conti, St. Louis and Toulouse streets be so graded as to drain into Galvez Canal.

3d. That Canal Street Draining Canal, from Claiborne street to the Metairie Ridge, be filled and obliterated.

4th. That the draining canal, now existing near to, and parallel with the Old Navigation Canal, be enlarged to a capacity sufficient to carry the sewage and rainfall received by the Galvez Canal.

5th. That large iron or earthen pipes be laid from the New Navigation Canal into Galvez Canal, and from the River into the Old Basin.

Communication from G. W. R. BAYLEY, *Esq., Civil Engineer.*

NEW ORLEANS, April 13th, 1871.

C. B. WHITE, M. D., *President,*
Board of Health, State of Louisiana.

DEAR SIR—As requested by you I submit the following remarks in relation to the plan of cleansing and purifying the streets, gutters, and principal draining canals nearest to the rear of the built up portion of the city, by means of the system of "flushing";—by which is meant, the rapid passage of water through them with as much "head" and in as large quantity as can be obtained, after the canals have been emptied, or drained as nearly dry as possible, by the draining machines. To wash, or flush the canals, it is necessary that the the water to be used for the purpose, should be accumulated or retained at the best available points, by means of gates, until a sufficient *head* is obtained. Then by opening the gate or gates suddenly, the water is made to flow rapidly through the canal to be cleaned sweeping the accumulation of the foulest matter before or with it, to or towards the draining machines, which in the meantime are to be kept working, to keep the canals clean and pump out the water used for "flushing" them.

This process to be commenced at the gates nearest to the heads of the canals, the lower ones remaining open meanwhile—and to be continued, successively, from gate to gate, to the foot of the slope, or that portion of the canal, or reservior, nearest to the draining machine itself. The gates to be used for the above purpose, can be constructed in such a manner as to act automatically, when to be used, if desired; or to open themselves at a fixed head of water. The construction of these gates would not be very expensive, neither would the cost of opening them, while the extra cost of working the draining machines would be far more than compensated by the saving in the excavation of the canals by manual labor. The large canals and reservoirs should be cleaned, when necessary, by dredging machines.

I am entirely convinced, by actual trial, that the plan of cleaning and purifying our drainage canals, by flushing them with water, could not but be successful.

Of course, during heavy, or even moderate rains, the gates could be used to some extent, for flushing the canals, before

the accumulation of water in them became to great to admit of their use; but they would be of greatest service during the protracted dry seasons, when the canals become most offensive and most in need of purifying.

While City Surveyor, some years ago, I tried this plan (on a limited scale it is true,) but with very satisfactory results, on some of the canals between Galvez Street and Hagan Avenue, by using water obtained from pipes leading through from the New Canal into Galvez Canal.

At that time the canals experimented upon, particularly those adjacent to the Marine Hospital, was very foul and offensive. The gates were used and the Canals flushed once or twice a week. The Canals thus experimented upon were kept clean, and almost free from offensive odors, so long as the system was in operation.

This method of cleaning and purifying the sewers and canals, by flushing them with pure water, is in use in many large cities, and is, in fact, the best and only known mode of doing it. How else can they be cleaned, except by excavating the material necessary to be removed, and casting the same out into the streets to fester, ferment and exhale foul and health destroying odors.?

It is well known that canals which drain the thickly settled portions of our City, rapidly become obstructed and partially filled with the heavier and most offensive feculent and fecal portions of the city sewage, together with the garbage and dead animals thrown into them, and that during dry weather when there is not sufficient water passing through the canals to sweep away the accumulation, our canals or sewers are in their worst state. Heretofore, when the Canals become thus too much obstructed to serve the purposes of drainage, the custom has been to excavate and cast out upon the margins of the canals, to putrify or dry up in the hot sun, the deposits from sewage in them.

From the Mississippi River an unlimited supply of pure water can be procured at all times, by the natural flow of water through pipes. From the levee to the foot of the natural slope, back of Claiborne Street there is a gradual fall of from

twelve to fifteen feet, and an artificial slope downwards thence to the bottom of the draining machine wheels, of about five feet more, or a total fall for drainage of about twenty feet.

The conditions for the maintainance of a system, having for its object to clean and purify, by washing or "flushing" with pure water, the streets, gutters and sewage canals of our city, could not be more favorable. A never failing supply of water, and an inclined plane down which it can flow without interruption. Can there be a doubt of the importance and immense benefit to the health and prosperity of our city of availing ourselves of these advantages? You are a better judge of what would be the effect of maintaining streams of river water through our streets, and of the cleaning and purifying of our sewer canals by means of the same water, as above indicated, than myself; but that it would go far towards removing the causes of disease, seems manifest.

The excavation of the drainage canals and the building of the protection levees, now proposed cannot be too soon accomplished. In connection therewith we should have powerful draining machines, judiciously located, and enough of them.

But, shall the working of the draining machines be limited, as heretofore, to the emptying of the canals when filled--and not until filled—by rain water or sewage? Would not the consequent improvement in the health of the city and the increase of its business, more than compensate for the additional cost of working the draining machines to remove also the water used to wash our streets and gutters and to flush the canals, as proposed?

A commencement might be made in construction of gates for "flushing" the canals, by locating one of them at the head of Melpomene Canal, and one or more in said canal between its head and the draining machine.

Others could be used to advantage in Galvez Canal and on other canals, between Galvez and Hagan Avenue Canals, by admitting water through pipes from the New and Old Navigation Canals. Below the Old Navigation Canal on Bayou St. John, they might also be used to advantage.

With respect, yours very truly,

G. W. R. BAYLEY.

Extract from Treatment and Utilization of Sewage, by Professor W. H. Corfield, London, 1871, *pp.* 146–7.

"In some other experiments with a flushing-gate, four feet high—the quantity of water headed up for one flush being 26,605 cubic feet—it was found that, by a single flush, brick-bats were carried along for a distance of from 261 to 529 feet. By a second flush the foremost brick-bat had reached 1170 feet; after the third flush the whole were found to have passed a distance of 1300 feet. The whole bricks were carried from 248 feet to 760 feet by one flush, and by the second flush the foremost brick was carried 160 feet further. These experiments demonstrate very clearly the effectual flushing power of a head of water backed up by a floodgate. It need scarcely be pointed out that much time and money is saved by flushing. It was found, on calculation, that the cost of putting down one of these flushing apparatus (a mere board dam) was less than cleaning the sewer in the old way, while the apparatus remained for future use at no more expense than the men's labor. In an instance where 6688 yards of foul deposit had been removed by flushing, it was calculated that, as the whole cost of removing it by hand labor would have been £2387 ($11,935 gold), while the cost of putting up the inside apparatus and flushing-gate was £1293 ($6465), and the cost of men's time, £644, 12*s.*, 7*d.* ($322 15 g.), there was then a saving of £455 ($2275) to the Commission, besides the fact that, on account of the side entrances, the pavement would no longer require to be taken up as before, and the apparatus would remain to be used as required. In the Holborn and Finsburg district it is stated that at that time (1844), about two-sevenths of the sewers were supplied with flushing apparatus, and that while the actual cost of cleansing those by the old mode would be £236 17*s.* ($1634 25), the cost for men to work the gates now placed, that is, keeping the sewers clear from deposit, is £106 ($530 g.), per annum, leaving a saving of £220 ($1100 g.) per annum on the two-sevenths."

The Board of Health have the honor to offer these recommendations and reports to your careful consideration.

Very respectfully, your ob't servant,

C. B. WHITE, M. D.,

President Board of Health State of Louisiana.

S. C. RUSSELL, M. D., *Sec'y Board of Health.*

ANNUAL REPORT

OF THE

BOARD OF HEALTH,

TO THE

General Assembly of Louisiana,

DECEMBER 31st, 1872.

SESSION OF 1873.

NEW ORLEANS:

1873.

BOARD OF HEALTH.

HON. JOHN S. WALTON.
A. W. SMYTH, M. D.
H. D. BALDWIN, M. D.
WM. H. HIRE, M. D.
*M. P. AVILA, M. D.
B. MAAS, M, D.
C. B. WHITE, M. D., PRESIDENT.
S. C. RUSSELL, M. D., SECRETARY.

ATTORNEY OF THE BOARD.
CHAS. S. RICE, ESQ.

CHEMIST.
A. W. PERRY, M. D.

CLERK.
ISAAC STATHEM.

*Died January 3d, 1872.

RESIDENT PHYSICIANS

OF QUARANTINE STATIONS.

MISSISSIPPI STATION.

H. D. BALDWIN, M. D.

R. WESTERFIELD, M. D., ASSISTANT.

RIGOLETTES STATION.

SHAKSPEARE ALLEN, M. D.

ATCHAFALAYA STATION.

M. A. ROACH, M. D.

SANITARY INSPECTORS.

First District	JULIUS S. CLARK, M. D.
Second District	*F. B. ALBERS, M. D. S. S. HERRICK, M. D.
Third District	WM. H. HIRE, M. D.
Fourth District	A. W. PERRY, M. D.
Fifth District	JULES A. MATHIEU, M. D.
Sixth District	A. W. PERRY, M. D.

*Died April 11th, 1872.

MEMBERS OF THE METROPOLITAN POLICE

ON DUTY WITH THE BOARD OF HEALTH.

FIRST DISTRICT.

N. WOODDY,
M. H. NICOLL,
L. G. PARKER.

SECOND DISTRICT.

T. G. STEPHOUT,
JOSEPH CONNELL,
N. G. BARRETT,
L. D. ALLEN.

THIRD DISTRICT.

T. G. MARONY,
J. SCHOTT.

FOURTH DISTRICT.

LOUIS BACKERS.

FIFTH DISTRICT.

H. W. BANCROFT.

SIXTH DISTRICT.

P. BEAUMAN.

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REPORT.

STATE OF LOUISIANA,

OFFICE OF THE BOARD OF HEALTH,
159 CANAL STREET,

NEW ORLEANS, December 31st, 1872.

To the General Assembly of the State of Louisiana:

The Board of Health respectfully submits its Annual Report.

On the second day of January, occurred the death of M. P. Avila, M. D., for the eleven months preceding his death, member of the Board of Health, on the part of the city of New Orleans.

Dr. Avila, during his connection with this body, also filled a responsible position as Surgeon of the Metropolitan Police. The duties connected with this position, and the occupation of his time by an extensive private practice, interfered in some degree, with the regularity of his attendance upon the meetings of the Board; but whenever present, his intelligence and courtesy made his presence agreeable and valuable. The large number of persons of all classes who visited his house upon hearing of his illness and death, and who were gathered there, and in the neighboring streets, to testify by their presence at the funeral services, their regard and respect for the deceased, is ample evidence of the high esteem in which he was held by those, whose personal or professional relations gave the widest acquaintance with his character.

QUARANTINE.

The customary examination of vessels at the Mississippi Quarantine Station was made during the year.

Quarantine against West India and South American ports, made dangerous by the presence of yellow fever thereat, took

effect agreeably to the Governor's Proclamation, on the 1st day of July, and ceased on the 12th day of October, 1872.

The commencement and duration of quarantine at the Rigolets Station, being within the discretion of the Board of Health, it was established August first, and discontinued October fifth.

At the Atchafalaya Station, quarantine was maintained from May 1st to October 31st, as required by law.

It is recommended that by appropriate legislation, the same liberty as that now existing with reference to quarantine at the Rigolets, be accorded to the Board as to quarantine at the Atchafalaya Station.

It is also recommended that authority be given to establish quarantine at other points than those now designated by existing acts upon this subject, whenever necessity for such action may arise.

From the facts now before it, the Board of Health do not feel justified in recommending any change in the existing regulations, relative to method or duration of quarantine against yellow fever. Should the progress of sanitary science demonstrate the necessity or permissibility of their modification, it will promptly make the proper recommendations.

The scientific sanitary desideratum in quarantine is, certain, rapid disinfection of the loaded vessel by agents not inimical to craft or cargo, and it is in this direction that inquiry in the immediate future should be made.

In New Orleans, owing, perhaps, to incomplete observations and imperfect records, it is still an open question whether yellow fever be an indigene, or be a tropical production, occasionally introduced, and thereafter surviving through a series of mild winters, or annually introduced, and only occasionally finding the circumstances favorable to vigorous multiplication, and consequent disease and death, or whether it may not exist at the same time, indigenous and imported.

The question then being at this date one undecided, it is thought that the reproduction from the report of Hon. John Simon, F. R. S., Chief Medical Officer of Great Britain, of the account of the outbreak of yellow fever in 1865 at Swansea, Wales, G. B., and St. Nazaire, at the mouth of the river Loire, France, will possess interest and value.

"The latitude of Swansea is 51 deg. 40 min.; that of St. Nazaire 47 deg. 15 min. They are, therefore, out of the yellow fever zone, in which New Orleans may be considered to lie, and yellow fever is indigenous to neither of them.

The outbreak of yellow fever at Swansea in September last, was in one respect an event of extreme importance. That England is not insusceptible of this tropical infection, but that (at least under favoring circumstances). yellow fever can seriously damage a port-side population in England, this truth was conclusively discovered in Swansea at the cost of fully fifteen lives."

"The broad facts of the case may be told in very few words, under the following two heads:

1. "The Hecla left Cuba on the 26th of July, with cases of yellow fever on board; had successive new cases till towards the end of August. Entered Swansea harbor on the 9th of September, with one of her seamen dying, and two others but convalescent from the fever, and was immediately moored alongside a wharf, where she landed her sick, discharged (though not uninterruptedly) her cargo, and remained stationary till the 28th, when remonstrances, which at last had become irresistible, led to her being removed from within the dock.

2. "From September 15th, six days after her arrival, to October 4th, six days after her removal, Swansea witnessed the entirely new phenomenon of yellow fever attacking, in succession, some twenty inhabitants of the town, besides others who suffered less definitely, or more mildly; and this not indiscriminately over the whole large area of Swansea, but only in definite local relations to the ship; while at Llanelly there also fell sick in the same way three of the crew of a small vessel which had been lying for two days alongside the Hecla, at Swansea. * * * * * *.

"I have said that the outbreak which I have described was, so far as I know, unparalleled in the experience of England. Indeed, anywhere on this side of the Atlantic, yellow fever is a rare phenomenon, and the few occasions where it has been epidemic in Europe, even the northmost latitude where it has been seen has been south, and almost invariably much south

of the southmost latitude of England. Five years ago, however, France was startled, as now England has been, by an outburst of yellow fever in a latitude where the disease had never been epidemic—namely, at St. Nazaire, at the mouth of the Loire. * * * * *"

"The story, as I got it from the official communication, was briefly this: That about June 13th, the Anne Marie, a wooden sailing vessel loaded with cases of sugar, left Havana, where yellow fever was epidemic; that between July 2d and July 12th, attacks of yellow fever occurred on board; that on July 25th she arrived at St. Nazaire, where, "twenty days having elapsed since the last death and thirteen days since the last case (attack) of illness," she was admitted to the free pratique; that till the 3d of August she was being unloaded by laborers of St. Nazaire; that many of these laborers were on the 5th and 6th of August attacked with yellow fever; that previously—on the 2d, 3d and 4th of August, respectively—the mate of the Anne Marie, who had remained on board, a cooper who had been "employed to repair the cases," and a stone-cutter, who had been working on the quay, near the Anne Marie, had been attacked by illness, which, in at least the first two, was believed to be yellow fever; that, moreover, on August 1st, the Chastan, which now was at Indret, but previously had been at St. Nazarie, lying alongside the Anne Marie, had had a first attack of yellow fever, and then by August 5th all the men who formed her crew had been attacked; that when the place of the Chastan, beside the Anne Marie, was taken by the Dardanelles, a boy in charge of the Dardanelles, the only person on board of her, contracted yellow fever; that the Cormoran, which had been taking cargo from the Chastan while alongside the Anne Marie, had, after some days, two cases of yellow fever on board; that a steamer of the Lorient Company, having remained two days in harbor near the Anne Marie, had, on returning to Lorient, two of her crew attacked with yellow fever; that two lighters from Indret having also remained two days near the Anne Marie had afterwards their crews, seven or eight in number, attacked with "a kind of half yellow fever." Finally, that an eighth vessel, the Arequipa, which had also remained for several days near the Anne Marie and had on

August 1st sailed for Cayenne, but been detained off the French coast by bad weather till August 5th, had on August 5th a first attack of yellow fever, and had other attacks at intervals during the six or seven weeks following. It was alleged, moreover, that while the above events were in progress certain of the patients, being on shore at St. Nazaire and its neighborhood, communicated yellow fever to two or three, and slight illness of the same kind to some others of the persons who were about them; but without going here into any minute discussion of these cases, I may state as a conclusion to which a careful study of the official papers led me, that in my opinion it was only in a very qualified sense, if at all, that communication of yellow fever by means of personal intercourse could be said to be proven by the cases.

"The total mischief done by the outbreak was set down at 44 cases of yellow fever, resulting in 26 deaths from the disease.

"It was stated that, at the time when the Anne Marie arrived in port, there was no other vestige of yellow fever at St. Nazaire or in its nieghborhood; that neither yellow fever nor anything like it had ever before existed in the district, and that no other yellow fever was seen in that summer on this side of the Atlantic."

In connection with this question of infection and portability, attention is invited to remarks on this subject by Dr. S. Allen, to be found in the latter part of the report.

SMALL-POX.

Ninety-eight cases of small-pox (and varioloid) have occurred during the year. Of these fifty eight recovered and forty died.

In January	there were	six cases.
" February	"	two "
" March	"	seven "
" April	"	twenty-three cases.
" May	"	nine cases.
" June	"	three "
" July	"	none "
" August	"	none "
" September	"	one "
" October	"	one "
" November	"	ten "
" December	"	thirty-six cases.

The disease, therefore, in July and August, were extinct in New Orleans. September 16th, a case occurred, whose origin could not be traced. The case was quarantined for twenty days, thorough disinfection practiced, and it left no offspring. October 25th, an unknown man, too sick to give any history of himself, was sent to the small-pox hospital. No cases sprang from this source of infection.

In November, ten cases were sent to the hospital—all of which, save one, were brought from St. Louis. No case of local infection yet having appeared.

In December, as has been already stated, thirty-six cases occurred. Of these, twenty-three are known to have been brought to the city by various routes of travel: from Europe, New York, Chicago, Cincinnati, Memphis, Natchez, Louisville, and much the greater number of them from St. Louis. Owing to the condition of the patients, dying or delirious and friendless, the history of other cases cannot be traced, but there have certainly thus far been only four local sources of infection created. Of these, two are destroyed—one has apparently ceased to infect, and the fourth in the vicinity of Annunciation street, near Erato, thus far has evaded control. The Board of Health, taking into consideration the *general prevalence* of small-pox in the cities and communities to the northward, the consequent impossibility of entirely preventing contagion by isolation and disinfection, on the 26th of November, addressed to the Honorable Board of Administrators of the City, the communication which follows:

STATE OF LOUISIANA,

OFFICE OF THE BOARD OF HEALTH,
159 CANAL STREET,

NEW ORLEANS, November 26, 1872.

Hon. Mayor of New Orleans:

Sir—I am credibly informed that epidemic small-pox exists in St. Louis and Louisville.

A number of cases of small-pox have been brought to this city, but having been promptly removed to the hospital, thus far no visible damage has occurred to the health of our citizens. A continuance of this good fortune is very improbable.

As the best and only effective preventive of the injuries which the prevalence of small-pox would inflict on this city, I recommend that gratuitous vaccination be offered at every house of the city; and to secure this, that the Honorable City Administrators pass an ordinance authorizing the Board of Health to secure such ample supply of vaccine virus, and to employ such number of physicians, as will secure the visitation of every house in the city, in the course of ten to fifteen days.

The expense of such a procedure will be something, but it is to be remembered that every case of small-pox, treated at hospital, costs the city from twenty to fifty dollars, to say nothing of the loss of labor value, of the suffering of the sick, the anxiety of friends and families, the frequent deaths, and the extensive injury to the commercial prosperity of the town.

Very respectfully,

Your obedient servant,

C. B. WHITE, M. D..

President Board of Health.

No action has yet been taken by the city authorities upon the subject.

The Board of Health have reliable information that small-pox exists in six of the interior parishes of the State, and in view of the threatening aspect of the public health in reference to small-pox, repeats its annual recommendation of the *last three years*. "In view of the exposure of vast numbers of the people of this State (certainly exceeding two hundred thousand) to sickness and death by small-pox, it is recommended that there be passed the law entitled "An Act to provide for gratuitous vaccination throughout the State, and to protect the State from the ravages of small-pox." The projét of which was given in full in its annual report for 1869.

A supply of fresh and pure vaccine virus has, as heretofore, been maintained for gratuitous distribution to all physicians of the city or State.

The use of crust or lymph immediately from the cow has proven unsatisfactory by reason of its almost certain failure to "take," when applied to the human being. "Points," as a mode of preserving and applying vaccine virus, are of value

when used without delay, but as received from abroad, or as used for its long preservation in New Orleans, are worthless. The crust proves most certain in this climate to preserve the virus in an efficient state.

The original supply of virus, obtained in 1872, as in previous years, from Dr. Henry A. Martin, of Boston Highlands, Mass., was one remove from the cow, and has proved certain, energetic, and in no case has caused accident.

The pedigree (if the expression be allowable) of all vaccine virus passing through the office of the Board of Health is kept, viz: to whom the vaccine is furnished, time when received, the name of the child vaccinated, and the date of its vaccination. Thus if accident should occur, it is easy to show that the vaccine is pure, and that the cause of the accident lay in a vicious state of the constitution of the unfortunate child. Thus far *no accident has ever occurred.*

It is absolutely impossible to secure complete protection of the community by vaccination, owing to the ignorance, prejudice, superstition, and carelessness of a certain portion of the people.

The Board of Health are of opinion that *vaccination* should be *compulsory.* That in this case the right of the *unprotected* citizen is entirely adverse to the rights of the community, and that the community have a right to *enforce vaccination* as the *only* method of protecting itself from this terrible disease—small-pox.

Gov. Geary, of Pennsylvania, in a late message to the General Assembly, recommends the adoption of measures to secure compulsory vaccination throughout the State.

The Government of Great Britian has wisely provided a public vaccination institute, and with judicious firmness, compels the vaccination of all her children.

Public, gratuitous, enforced vaccination should be the law of Louisiana.

YELLOW FEVER.

The cases of yellow fever which occurred in New Orleans during the season of 1872, are recorded in the following table:

List of Cases of Yellow Fever, which occurred in the City of New Orleans, during the Year 1872.

No. of Case	Date when Taken Sick.	NAMES.	LOCATION WHERE TAKEN SICK.	RESULT.
		AUGUST.		
1	Aug'st 28	Mr. F. H.	Cor. Rousseau and Wash. streets	Died.
2	.. 28	Miss M. K.	Octavia st., bet. St. Chas. & Swamp	Recovered.
		SEPTEMBER.		
3	Sept. 2	Mr. N. H.	228 Carondelet street.	Died.
4	.. 4	Mr. E. G.	179 Rampart street.	Recovered.
5	.. 8	Mr. J. C. McQ.	21 Canal street.	Died.
6	.. 11	Mrs. J. S. L.	320 Laurel street.	Recovered.
7	.. 11	Mr. J. N.	320 Laurel street.	Recovered.
8	.. 12	Mrs. E. C.	320 Laurel street.	Recovered.
9	.. 13	Mr. W. N.	320 Laurel street.	Recovered.
10	.. 13	Mr. S. T.	205 St. Joseph street.	Recovered.
11	.. 14	Miss C. C.	320 Laurel street.	Recovered.
12	.. 18	Mr. C. R.	Chippewa, b. St. And & Josephine.	Died.
13	.. 18	Mr. C. H.	97 St. Charles street.	Died.
14	.. 18	Mr. G. S.	Livaudais, bet. 5th and 6th sts.	Recovered.
15	.. 19	Mr. L. S.	102 Chartres street.	Died.
16	.. 20	Mr. D.	132 Sixth street.	Recovered.
17	.. 23	Mr. N. R.	279 Magnolia street.	Died.
18	.. 23	Mr. A. E. S.	309 Liberty street.	Recovered.
19	.. 23	Miss M. S.	131 Rousseau street.	Died.
20	.. 25	Mr. C.	149 St. Joseph street.	Recovered.
21	.. 26	Mrs. A. S. L.	Camp, 3d door below Terpsichore.	Died.
22	.. 27	Mr. B. F. M.	223 St. Charles street.	Recovered.
23	.. 28	Mr. J. McD.	219 St. Charles street.	Died.
24	.. 29	Mr. J. B.	Tchoupitoulas, bet. 3d and 4th sts.	Recovered.
25	.. 30	Mrs. J. B.	Tchoupitoulas, bet. 3d and 4th sts.	Recovered.
26	.. 30	Mr. L. C.	Cor. Wash. and Magazine streets.	Recovered.
27	.. 30	Mrs. A. K.	168 Sixth street	Died.
		OCTOBER.		
28	Oct'r. 1	Mr. C. F.	Locality could not be ascertained.	Died.
29	.. 1	Mr. J. S.	S. S. Lizzie, New Basin.	Died.
30	.. 1	Mr. C. C.	813 Magazine street.	Died.
31	.. 2	Mr. C. T.	223 St. Charles street.	Recovered.
32	.. 2	Mr. W. K.	168 Sixth street.	Recovered.
33	.. 3	Mrs. P. B.	223 St. Charles street.	Recovered.
34	.. 3	Mrs. J. T. H.	Corner Philip and Chestnut sts.	Recovered.
35	.. 5	Mr. J. W.	131 Rousseau street.	Died.
36	.. 5	Miss J. K.	21 Washington street.	Recovered.
37	.. 7	Mr. N. S.	131 Rousseau street.	Died.
38	.. 7	Mr. R. H.	Corner Philip and Coliseum sts.	Recovered.
39	.. 8	Mr. L. R.	131 Rousseau street.	Died.
40	.. 8	Mr. A. B.	78 Third street.	Recovered.
41	.. 8	Mr. H. A. P.	242 Josephine street.	Recovered.
42	.. 9	Miss S. T.	178 Jackson street.	Recovered.
43	.. 10	Mr. T. M.	196 Jackson street.	Died.
44	.. 10	Miss C. S.	Greatmen, near Louisa street.	Died.
45	.. 10	Mr. C. R.	180 Jackson street.	Died.
46	.. 11	Mr. C. M.	178 Jackson street.	Recovered.
47	.. 12	Mr. W. I.	Corner 7th and Constance streets.	Died.
48	.. 12	Mrs. M. C. A.	Corner Jackson and Constance sts.	Died.
49	.. 13	Mrs. S.	644 Magazine street.	Recovered.
50	.. 13	Miss L. T.	644 Magazine street.	Died.

List of Cases of Yellow Fever—Continued.

No. of Case	Date when Taken Sick.		NAMES.	LOCATION WHERE TAKEN SICK.	RESULT.
			OCTOBER.		
51	Oct'r	13	Mr. B. F.	209 St. Mary street.	Recovered.
52	..	13	Miss A. G.	Cor 8th and Magazine streets.	Recovered.
53	..	13	Miss B. B.	74 Seventh street.	Died.
54	..	13	Miss M. V. P.	242 Josephine street.	Recovered.
55	..	13	Mrs. S. V. P.	242 Josephine street.	Recovered.
56	..	13	Mr. G. S.	Corner Seventh and Constance sts.	Recovered.
57	..	15	Mrs. C. K.	Corner Jackson and Magazine sts.	Recovered.
58	..	15	Mr. W. W. H.	798 Magazine street.	Died.
59	..	15	Miss W. L. W.	71 Brainard street.	Died.
60	..	18	Mr. G. D.	Cor. of Seventh and Constance sts.	Recovered.
61	..	18	Mrs. H.	511 Baronne street.	Recovered.
62	..	19	Miss J. M. W.	173 Phillip street.	Died.
63	..	19	Mr. D.	Corner Seventh and Camp streets	Recovered.
64	..	20	Miss A. T.	162 Felicity street.	Died.
65	..	21	Miss M. L.	438 Annunciation street.	Died.
66	..	21	Miss A. R.	103 St. Louis street.	Recovered.
67	..	21	Mrs. L. H.	673 Tchoupitoulas street.	Died.
68	..	25	Mr. H. S.	188 Constance street.	Died.
69	..	30	Mrs. B.	203 St. Joseph street.	Died.
70	..	31	Mrs. B.	57 Josephine street.	Recovered.
			NOVEMBER.		
71	Novm.	1	Mr. G. Z.	Magnolia, bet. Phillip & Front sts.	Recovered.
72	..	1	Mr. H. M.	31 Hospital street.	Died.
73	..	2	Mr. W. McK.	191 Eighth street.	Died.
74	..	3	Mr. J. P.	Third, bet. Constance & Magnolia.	Recovered.
75	..	5	Mr. C. H. G.	565 Carondelet street.	Died.
76	..	8	Mrs. R. S.	Algiers.	Died.
77	..	11	Mr. R. K.	St. Andrew street.	Died.
78	..	14	Mr. P. G. H.	168 Phillip street.	Died.
79	..	17	Miss J. K.	180 Rousseau street.	Recovered.
80	..	19	Mr. N. O.	Charity Hospital.	Recovered.
81	..	25	Mr. P. H.	94 St. Andrew street.	Died.
82	..	26	Miss M. H.	23 Rampart street.	Died.
83	..	30	Mrs. B.	94 St. Andrew street.	Recovered.

No. 18 of the list is noticeable as being, undoubtedly, the only "imported" yellow fever case of the year. The man was employed on the steamship "Havana," from Havana, and was taken ill just before leaving Mississippi Quarantine Station, but succeeded in eluding the vigilance of the quarantine physician. The case was promptly reported to the Board of Health, the usual measures of disinfection practiced, and it gave rise to no other case. All other cases recorded in this table must be considered indiginous, no suspicion of importation, or imported infection attaching to any of them.

By reference to the table it will be seen that two persons are recorded as having been attacked with yellow fever on the 28th of August. Number 2 was not an unmistakable case of the disease; the point of residence close upon the swamp at the rear of the city, and other circumstances, seem rather to indicate a very severe malarious attack, accompanied and followed by considerable evidence of blood poisoning, as is occasionally seen in severe attacks of our marsh fevers. Whatever the case may have been, it was an isolated one and no similar cases occurred either in its immediate neighborhood, or any where in the district.

Number 1 of the table was an undoubted, typical case, of yellow fever, and the vicinity of his residence proved a focus of infection. Connected with this case were number 5 taken sick September 8th, who worked in the same store with number 1, for some hours each day; number 20 who nursed number 5, attacked September 25th; number 14 who slept with case number 5 for two nights, taken sick September 18th; number 36 taken sick October 5th, visited frequently by number 14; numbers 24 and 25 attacked September 29th and 30th, frequent visitants of the drug store where number 1 lived, and were visited frequently by both number 1 and number 14. The various persons whose cases are thus given, live immediately in the vicinity of the drug store where number 1 was taken sick. With our present ignorance of the causes of yellow fever, it cannot be decided whether these were cases of contagion, of portability of infection, or of exposure to a poison common to that locality

Number 3 of the table is the first of a series of cases of yel low fever occurring in the square bounded by St. Charles, Julia, Carondelet and St. Joseph streets; seven cases of yellow fever originated in this focus of infection, an independent, and the only one in the First District of the city.

Number 19 was the first of a series of cases at a third focus of infection, which included numbers 35, 37, 39 and 44.

The cases of Mrs. P. G. H., number 78 of the table, and of M. H., number 82, of the same family, require comment. Their arrival in the city was at noon of Friday, November 8th, and they took up their residence just opposite that of number 62. Thursday, 14th November, about 6 P. M., Mrs. H. was attacked with yellow fever, at the end of 48 hours the first black vomit appeared, and her death took place on the morning of November 19th. M. H., number 82, an infant, was vaccinated on the morning of the 14th, the same day on the evening of which Mrs. P. G. H. was taken sick; on the morning of the 16th, was removed to 23 Rampart street, but was not taken sick until the 26th November, during which interval the vaccination had taken effect and run a regular course, and the yellow fever did not apppear until even the local action of the vaccine had entirely declined. The disease, thererore, if contracted at 168 Phillip street had had an incubation of not less than ten days. It was after six days illness, that yellowness of the skin could be detected, and that black vomit declared itself. It might not be a frivolous question to ask, whether the period of incubation might not have been lengthened by the change of the system undergone in vaccination, and whether the course of the disease may not have been delayed or modified by the process alluded to.

The locality of cases with reference to the districts of the city, is as follows:

First District—17 cases, one an imported case.

Second District—4 cases.

Third District—1 case contracted in Fourth District.

Fourth District—59 cases

Two of the cases in the First and one in the Third District were contracted in the Fourth District.

Fifth District—1 case.

Six District—1 case, and one other case, the locality of whose attack is unknown. The Fourth district originated sixty-one of the cases.

An examination of the map shows that the yellow fever area of 1872 surrounds the yellow fever area of 1871, and that scarcely a case occurred this year in the locality where it prevailed last year. The central point of most potent yellow fever infection existed at the corner of Magazine and Jackson streets.

In the report of Dr. A. W. Perry, Sanitary Inspector of the Fourth District, will be found a full report of sanitary operations, and interesting details in regard to yellow fever as it appeared in that portion of the city, and to which as already stated it was chiefly confined.

It may not be improper to state, in view of the inaccurate ideas concerning yellow fever, entertained by many able medical men to whom the opportunity has not been afforded to test their theories of its origin and nature, and cause, by personal observation, that all intelligent and experienced physicians in New Orleans hold yellow fever to be a disease of the class "zymotic," a disease sui generis, in no way allied to so-called *malarious* fevers, being the result of a different ferment or poison. That yellow fever is self-limited, treatment having no effect whatever in changing its duration or modifying its regular stages; that the poison is not as in the case of small-pox, reproduced in the system, but as facts at present known indicate, the locality and not the individual, is the seat of the infection, the second case not being attacked by reason of the proximity of the first, but by exposure to the same causative infection.

The distinction of nature between yellow fever and ordinary malarious fever is evidenced in the most striking manner by the results of the use of quinine. In all acute and recent malarious attacks, quinine *immediately breaks down* febrile action, and at least temporarily *cures* the patient, and deaths are exceedingly infrequent. In yellow fever, quinine effects no curative results, and the disease passes through its regular stages, and if to death, with but slight modification for good. In ordinary seasons the mortality of those attacked by yellow fever is from

fifteen to twenty-five per cent. Yellow fever rarely attacks the same person a second time, the immunity being doubtless equal to that acquired in reference to small-pox by a first attack of that disease. Some so-called attacks of yellow fever may be explained by considering that in the case of small-pox a mistaken diognosis is impossible, while a severe ephemeral fever occurring in time of epidemic may without any especial discredit to the physician, be confounded with a mild (so-called) case of yellow fever.

The localized infection of yellow fever during the past three years, and that localization with reference to the prevalence of malarious fevers is not to be overlooked. In 1870 yellow fever was confined to a portion of the city four by twelve blocks wide and deep in the Second District of the city, and to a locality, three by six blocks wide and deep in the First District, both of which localities are well built and paved, are near the river, and are usually *especially free* from malarious disease. In 1871 and 1872, the disease occcurred in, and was almost wholly confined to limited portions of the Fourth District, portions of the district less liable to swamp fevers than its other parts, and far more healthy in that respect, than the rear portions of the city bordering the swamp for miles.

Medical opinion as to the personal contagiousness of yellow fever has varied from entire belief to total disbelief. It will have been noticed that some of the cases of this year have a bearing in favor of the contagion theory. The discovery of the contagium particles of small-pox, less than one-twenty thousandth of an inch in diameter, make it easy to explain the carrying of infection by clothing or other still less noticeable methods, provided the existence of germs or contagium particles in yellow fever be granted.

The confinement of yellow fever for weeks or months to localities of such extremely limited dimensions, as has been the case during the last three years, localities out of which all are safe, and within which all unacclimated persons who abide, are attacked, point to a a *poison locally grown*, and certainly gives hope that in the future the chemist or microscopist may be able to isolate the cause, and with scientific accuracy compass its destruction.

RIVER
New Levee
Rousseau St.
Fulton St.
Chippewa
Annunciation St.
Laurel St.
Constance St.
Magazine St.
Camp St.
Jade St.
Mary St.
Andrews St.
Josephine St.
Jackson St.
Philippa St.
Tchoupitoulas St.
First St.
Second St.
Third St.
Fourth St.
Washington St.
Sixth St.
Seventh St.
Eighth St.
Ninth St.
Tenth St.
Eleventh St.
Twelfth St.
Circle ¼ Mile in diameter
1871
1872
Water
E
S
W
N

MORTALITY FROM ALL FEVERS.

From May 15th to November 15th, daily reports of deaths by all fevers and so-called congestions, made up from the books of the City Registrar, were furnished to the office of the Board by the Sanitary Inspector of the Second District, and from this office were sent immediately to the Sanitary Inspector, in whose district they occurred, for investigation.

In a large number of the cases examined, the premises were found in a notably unhealthy condition. In scarcely any were found all the conditions of a healthy habitation. A large number of the orders given by the Board to abate nuisances by drainage or filling of lots, were based on information as to the necessity of such action acquired by the inquisition into the hygienic circumstances surrounding those deceased of fevers and "congestions." These deaths chiefly occurred in the rear portions of the city.

The week ending June 9th was the most fatal of the year, as will be seen by a glance at the lithographic mortuary chart, the deaths numbering one hundred and seventy. Of these eighty-nine were of children two years old and under. An investigation of the locality of these deaths of infants and young children, showed that this mortality followed a line approaching within a few squares of the river in the lower parts of the Third District, receding from the river as the city became wider, continuing in the vicinity of Galvez street, at the central part of the city, coming again near the river in the Fourth District, and within a very few blocks of it in the Sixth. The hygienic fact is, that the deaths occurred in the locality where the sewage of the town was most accumulated and poisonous, and the swamp poison was most effective. It followed a period of warm and absolutely dry weather, the streets sewers, as usual, were entirely neglected, and the foulness of the exhalations unbearable and indescribable. A heavy rain came, all sewers and canals were washed out, and an immediate improvement in health occurred. As will be seen by reference to the chart alluded to, there occurred for some weeks thereafter heavy, brisk rains, at quite regular intervals, whose favorable influence on the summer health was undoubted.

COAL OILS.

No special attention has been paid during the year to illuminating fluids derived from petroleum. The following table of accidents from their use has been prepared principally from the reports of the Metropolitan Police, and partly from those of our own officers.

List of Accidents which occurred in the the City of New Orleans, during the year 1872, *from the use of dangerous illuminating Oils.*

No.	Locality where accident occurred.	Date of accident.	Names of injured persons.	Name of Oil.	Class.	Mercantile name.	Specific gravity Baume.	Flashing Point.	Loss by Fire.	REMARKS.
1	119 St. Louis street.	Jan. 1..	S. Dubois.....	Septoline	Light..	Naphtha.	63° .	6° ..	--------	Reported by DEPARTMENT OF POLICE.—The oil is said to have been purchased at the grocery on Dauphine, between Toulouse and St. Peter streets.
2	Cigar store opposite St. Mary's Market.	Jan. 7..	None..... ...	Septoline	Light..	Naphtha.	62° .	6° ..	--------	Reported by POLICE.—Oil said to have been purchased at the grocery, corner St. Charles and St. Joseph streets.
3	Cor. Water and Jackson sts.	Jan. 26.	Carrie Elmore. Wm. Kennedy..	---- ----	--------	---------	----	----	--------	Reported by POLICE.
4	154 Common street.	Jan. 30.	Selina Leonard.	Septoline	Light..	Naphtha.	62° .	6° ..	$50....	Reported by POLICE and Dr. CLARK.
5	104 Custom-house st.	Feb. 2..	Odell de Lara. Mrs. de Lara....	Septoline	Light..	Naphtha.	62° .	6° ..	$100....	Reported by POLICE and Dr. ALBERS.—Oil can exploded with loud report. Mr. Delara and wife badly burned. Oil reported to have been purchased at 15 Dauphine street.
6	128 Toulouse street.	Feb. 7..	None.....	Septoline	Light..	Naphtha.	63° .	6° ..	--------	Reported by POLICE.—Oil reported to have been purchased at 109 Dauphine street.
7	Dauphine, bet. Orleans and St. Ann st.	Feb. 9..	None.....	Septoline	Light..	Naphtha.	62° .	6° ..	.....	Reported to have been purchased at corner St. Ann and Dauphine streets.
8	171 Rampart street.	Feb. 10.	Herman Mintken.... --------	Septoline	Light..	Naphtha.	62° .	6° ..	--------	Reported by POLICE.
9	225 Orleans st.	Feb. 24.	None..... ----	---- ----	--------	---------	....	----	--------	Reported by DEPARTMENT OF POLICE and Dr. ALBERS.—Oil reported to have been purchased at corner St. Ann and Claiborne streets. No sample could be obtained.

List of Accidents which occurred in the City of New Orleans, during the year 1872, from the use of dangerous illuminating Oils.— Continued.

No.	Locality where accident occurred.	Date of accident.	Name of injured persons.	Name of Oil.	Class.	Mercantile name	Specific gravity, Baume.	Flashing Point.	Loss by Fire.	REMARKS.
10	263 Chartres street.	Feb. 25.	Wm. Abrams...	Septoline	Light..	Gasoline	67°..	6°...	.....	Reported by POLICE and Dr. ALBERS.—Oil reported to have been purchased at corner St. Phillip and Bourbon streets.
11	51 Peter street	Feb. 27.	None.....	Anchor..	Light..	Gasoline	70°..	-4°..	.....	Reported by POLICE and Dr. ALBERS.—Oil reported to have been purchased at the corner of Canal and Peters streets.
12	Magnolia Garden, Bayou Bridge.	Mar. 29.	None.....	Septoline	Light..	Naphtha	62°.	-6°..	$300...	Reported by POLICE.—Frame stable burned.
13	No. 47 Conti street.	April 8.	B. Simmonds....	Anchor..	Light..	Gasoline	70°..	-5°..	$35....	Reported by POLICE and Dr. HERRICK.—Oil reported to have been purchased at 15 Dauphine street.
14	Dryades, bet. Sixth & Washington streets.	April 10.	Francis Bryant..	Septoline	Light..	Naphtha	63°..	6°...	.....	Reported by POLICE and Dr. PERRY.—Oil reported to have been purchased at corner Washington and Dryades street.
15	Patterson, bet. Vallet & Chestnut streets.	April 20.	Frank Miller...	.....	.....	.....	.....	.....	.....	Reported by Dr. MATHIEU.—Oil reported to have been purchased of a traveling peddler.
16	219 Bienville street.	April 25.	None.....	Septoline	Light..	Naphtha	62°..	6°...	.....	Reported by POLICE.
17	Cambrine, bet. Front & Jefferson streets.	April 30.	None.....	.....	.....	.....	.....	.....	.....	Reported by POLICE.—Oil reported to have been purchased at No. 46 Tchoupitoulas street.
18	172 Poydras, street.	May 6..	Mary A. Chandler.	Carbol'ne	Light..	Naphtha	63°..	6°...	.....	Reported by Dr. CLARK.
19	Corner Second and Annunciation streets.	May 10.	Mrs. Blommeyer.	Kerosine	Heavy	.....	55°..	87°..	$25....	Reported by POLICE and Dr. PERRY.—Mrs. B. badly burned—causing death.

List of Accidents which occurred in the City of New Orleans, during the year 1872, *from the use of dangerous illuminating Oils.—Continued.*

No.	Locality where accident occurred.	Date of accident.	Name of injured persons.	Name of Oil	Class.	Mercantile name.	Specific gravity Baume.	Flashing Point.	Loss by Fire.	REMARKS.
20	Cor. First and Newton sts.,	May 11.	L. Gardeau.....	N't stated	.....	.....	.....	.....	$300....	Reported by Dr. MATHIEU.—No sample could be obtained.
21	Bayon Road bet. Robertson and Villere sts	May 17.	None.....	N't stated	.....	.....	.....	.....	$50.....	Reported by POLICE.—Small frame house destroyed. No sample could be obtained.
22	Cor. Thalia & Tchoupitoulas streets,	May 19.	——Morris..	.....	.....	.....	.....	.....	.....	Reported by Dr. CLARK.—No sample could be obtained.
23	No. 47 Eighth street,	May 30.	Mrs. Albert.....	Kerosine.	Heavy	.....	46°.	88°..	.....	Reported by Dr. PERRY and POLICE.—Mrs. Albert severly burned.
24	Cor. Independence & Levee streets,	May 21.	None.....	N't stated	.....	.....	.....	.....	$1700...	Reported by POLICE.—No sample of oil obtained.
25	Cor. Dorgenois and St. Ann streets,	May 27.	None.....	N't stated	.....	.....	.....	.....	$75.....	Reported by POLICE.—Oil reported to have been purchased at 37 Tchoupitoulas street.
26	100 St. Phillip street,	May 29.	None.....	N't stated	.....	.....	.....	.....	.....	Reported by Dr. HERRICK.—Lamp exploded while left burning. None of the fluid could be obtained.
27	447 White st..	June 2..	Mrs. Tilford....	N't stated	.....	.....	.....	.....	.....	Reported by POLICE and Dr. CLARK.—Oil reported to have been purchased of Kowalski on Carondelet street.
28	128 Bienville street,	June 3..	None.....	Anchor...	Light..	Gasoline.	70°.	-4°..	.....	Reported by POLICE and Dr. HERRICK.—Oil purchased at the corner of Dauphine and Bienville street.
29	506 Bienville street,	June 7..	Francois Edward.	Anchor...	Light..	Gasoline.	70°.	-4°..	.....	Reported by Dr. HERRICK.

List of Accidents which occurred in the city of New Orleans, during the year 1872, from the use of dangerous illuminating Oils—Continued.

No.	Locality where accident occurred.	Date of accident.	Names of injured persons.	Name of Oil.	Class.	Mercantile name.	Specific gravity Baumé	Flashing Point.	Loss by Fire.	REMARKS.
30	No. 33 Treme street,	June 7..	None.....	Crystal..	Light..	---- ----	-----	-----	.... ..	Reported by Dr. HERRICK.—No sample of the fluid could be obtained.
31	Second near St Dennis sts.,	June 9..	None.....	Kerosine.	.....	---- ----	-----	-----	.....	Reported by Dr. PERRY.—No sample obtained.
32	256 Chartres st	June 19.	None.....	Anchor..	Light..	Gasoline	70°..	-4°..	.....	Reported by POLICE.
33	Cor. Orleans & Rocheblave,	July 2..	August Chevat..	....	Light..	---- ----	-----	-----	.....	Reported by POLICE and Dr. HERRICK.—Oil said to have been purchased at corner Dorgenois and St. Peter streets. No sample obtained.
34	509 Josephine street,	July 6..	Mr. Delopannier	Septoline	Light..	Naphtha	62°..	6°...	.....	Reported by POLICE.—Oil reported to have been purchased at corner Josephine and Liberty streets.
35	Cor. Canal and Dauphine sts.	July 8..	None.....	Septoline	Light..	Naphtha	62°..	6°...	$25....	Reported by POLICE and Dr. HERRICK.—Purchased 15 Dauphine street.
36	Tchoupitoulas near Felicity,	July 13..	None	Septoline	Light..	Naphtha	62°..	6°...	.. ....	Reported by Police.—Oil reported to have been purchased corner Felicity and Tchoupitoulas streets.
37	Mandeville be. Cassacalvo and Dauphine sts..	July 19	None.....	Septoline	Light..	Naphtha	62°..	6°...	.....	Reported by DEPARNMENT OF POLICE.—Oil reported to have been purchased at corner Mandeville and Cassacalvo streets.
38	226 Baronne st	July 26.	None.....	.....	.....	Naphtha	63°..	-6°..	....	Reported by POLICE.—Oil purchased at corner Baronne and Julia streets.
39	Cor. Royal and St. Ann sts.	Aug. 12..	Mary Neven....	Septoline	Light..	Naphtha	62°..	6°...	.....	Reported by POLICE and Dr. HERRICK.
40	Milneburg....	Aug. 23..	None.....	N't stated	.....	---- ----	-----	-----	$50	Reported by POLICE.—Small frame building was destroyed.
41	120 St. Ann st	Aug. 26.	Joseph Gonzales	Septoline	Light..	Naphtha	62°..	6°...	$30	Reported by POLICE.—Furniture destroyed.

List of Accidents which occurred in the City of New Orleans, during the year 1872, from the use of dangerous illuminating Oils.—Continued.

No.	Locality where accident occurred.	Date of accident.	Name of injured persons.	Name of Oil.	Class.	Mercantile name	Specific gravity Baume.	Flashing Point.	Loss by Fire.	REMARKS.
42	285 Ursuline st	Sept. 6..	Mrs. Allville, John Tones and Emily Dumont.	N't stated	.....	....	.....	.....	.....	Reported by Dr. HERRICK.
43	40 Burgundy st	Sept. 12.	None.....	Kerosine.	.....	....	.....	.....	.....	Reported by POLICE and Dr. HERRICK.—No specimen could be obtained.
44	47 Franklin st	Sept. 17.	None.....	N't stated	.....	Kerosine.	.....	.....	.....	Reported by POLICE.
45	104 Barracks st	Oct. 8..	None.....	Septoline	Light..	Naphtha	62°..	6°...	.....	Reported by POLICE and Dr. HERRICK.
46	327 Constance street,	Oct. 10.	None.....	Kerosine.	Heavy	Kerosine.	48°..	76°..	.....	Reported by Dr. PERRY.
47	70 Girod st....	Oct. 19.	None.....	N't stated	.....	....	.....	.....	.....	Reported by POLICE.
48	117 Toulouse street,	Oct. 23.	John Jones.....	Septoline	Light..	Naphtha.	62°..	6°...	.....	Reported by POLICE and Dr. HERRICK.—Oil reported to have been purchased on Toulouse, between Dauphine and Burgundy streets.
49	861 Tchoupitoulas street,	Oct. 24.	None.....	N't stated	.....	....	.....	.....	$950...	Reported by POLICE.—A two story brick building destroyed.
50	Cor. St. Mary and Annunciation streets,	Nov. 26.	Mary Coffee.....	Puroline	Light..	....	.....	.....	$50....	Reported by Dr. PERRY.—No sample could be obtained.
51	Cor. Annunciation & Philip streets,	Nov. 30.	None.....	Puroline and Kerosine.	.....	....	.....	....	$40,000	Reported by Dr. PERRY and POLICE.—Seven frame buildings were destroyed. Oil can took fire from the grate
52	121 St. Louis street,	Dec. 15..	Mathilda Slater.	Septoline	Light..	Naphtha.	62°..	6°...	.....	Reported by Dr. HERRICK.—Oil can exploded.

The table is submitted as showing, that the accidents which result in injury to health, and in loss of property and life, are caused by the class of oils and fluids condemned in the former reports of the Board of Health upon the subject; that is to say, "heavy" oils contaminated with "Naphtha" by adulteration or neglect of the refiner, and the class of oils called "light" which are *wholly* Naphtha, known and sold as such by the refiners, but palmed upon an ignorant community at comparatively high prices, as safe, non-explosive, etc.

It will be perceived that a large number of accidents are put down as occurring from the use of Septoline. Justice requires the statement that, in some cases, the fluid was doubtless sold as Septoline, but nevertheless did not come from the establishment known as that of the "Septoline Oil Company." They were all, however, light oils, ranking commonly as Naphtha and Gasoline, and are neither more nor less dangerous than Septoline, which is merely a Naphtha of specific gravity, 62° or 63° Baumé.

Since the first efforts of the Board of Health to check the use of dangerous illuminating oils, the number of accidents has greatly decreased. It is believed, that a good portion of this result is due to the efforts of the Board of Health in this direction.

Downer's, Pratt's Astral and the new "Mineral Sperm" have of late met with a large sale. The latter is an oil which has but newly come into the market. It stands a much higher fire test, and its flashing point is much higher than even the "head-light" oil for locomotives. It is practically as safe as lard oil, and only requires slight change in the burner to be used in ordinary lamps. It is gratifying to know that the sales of this, as of other safe oils, is rapidly increasing.

In addition to the great advantage which has arisen by the increased sale of the above safe and well-known oils, it is believed that the grade of oils in general shipped to this market has greatly improved. The list of accidents furnished in the table, shows unfortunately the necessity for legislative action to repress the unscrupulous cupidity of those who sacrifice the property and persons of their fellow-citizens, for an added profit of a few cents per gallon.

The *projét* of an act on this subject was submitted in the Annual Report of the Board of Health for 1870. Action, substantially the same as that proposed at that time, is necessary, and it is respectfully recommended.

The Board of Health, about two years since, recommended to the Honorable City Administrators the impropriety and danger of the storage of large quantities of Kerosine oil, Naphtha, Benzine and Gasoline, in the heart of the city, among the most densely crowded dwellings and stores. Some discussion took place, but nothing is yet done, and destructive fires through the agency of these petroleum products is certainly but a question of time. In the opinion of the Board this dangerous and threatening evil demands legislative interference.

THE SMOKE NUISANCE.

The attention of the Board of Health was directed to this subject by well founded complaint of the vast volumes of black smoke emitted by certain manufacturing establishments.

The Attorney of the Board gave his professional opinion that the case was without its jurisdiction and could only be dealt with by the City Government under its "police" powers. The communication which follows was therefore addressed to the Hon. Board of Administrators, and with the following introductory remarks, was published at the time by one of the leading journals of the city :

"THE SMOKE NUISANCE—RECOMMENDATION ON THE SUBJECT BY THE BOARD OF HEALTH—HOW THE NUISANCE MAY BE ABATED.

"Quite an important case has been under investigation in one of our District Courts, in which the plaintiff asks for heavy damages against a manufacturing establishment, because of the alleged injury done to plaintiff's property by the smoke emanating from the furnace of the factory. On the trial of the case referred to, several eminent physicians were examined as to the injurious effects of smoke, and the practicability of the prevention of the smoke nuisance. The question having assumed a special legal, as well as local significance, we give

below the able official paper on that subject communicated to the City Council by the Board of Health, through its President, Dr. C. B. White:

"OFFICE BOARD OF HEALTH,
STATE OF LOUISIANA,
New Orleans, May 10th, 1872.

"HON. B. F. FLANDERS, *Mayor of New Orleans:*

"*Sir*—I have the honor to invite the attention of the Hon. Administrators of the city to the propriety and necessity of passing an ordinance to remedy the "Smoke Nuisance," by requiring furnaces to be so built as to secure entire combustion of fuel burned, and thus prevent the emission of smoke.

"The attorney of the Board of Health gives opinion that it is without the powers of the Board to make regulations on this subject, as it is in strictness to be considered a matter of *police.*

"The practicability of the prevention of smoke from furnaces used for steam engines, land and marine, and for manufacturing purposes in general, by a proper, original mode of construction, or by simple and inexpensive alteration of those already existing, was demonstrated as early as 1840. [See Dr. Ure's Dictionary of the Arts and Sciences, vol. 2, page 663.]

"It was not, however, until the 20th of August, 1853, that the British Parliament passed an act abating the nuisance from smoke in the metropolis.

"I offer some extracts from this act which bear upon the subject under discussion:

'An act to abate the nuisance arising from the smoke of furnaces in the metropolis, and from steam vessels above London bridge. (20th August, 1853.)

'Whereas, it is expedient to abate the nuisance arising from the smoke of furnaces in the metropolis, and from steam vessels above London bridge; be it therefore enacted, etc.:

'1. From and after the first day of August, one thousand eight hundred and fifty-four, every furnace employed or to be employed in the metropolis in the working of engines by steam, and every furnace employed or to be employed in any mill, factory, printing-house, dye-house, iron-foundry, glass-house, distillery, brewhouse, sugar-refinery, bake-house, gas-works,

water-works, or other buildings used for the purpose of trade or manufacture within the metropolis (although a steam engine be not used or employed therein), shall in all cases be constructed or altered so as to consume or burn the smoke arising from such furnace; and if any person shall, after the first day of August, one thousand eight hundred and fifty-four, within the metropolis, use any such furnace which shall not be constructed so as to consume or burn its own smoke, or shall so negligently use any such furnace as that the smoke arising therefrom shall not be effectually consumed or burned, or shall carry on any trade or business which shall occasion any noxious or offensive effluvia, or otherwise annoy the neighborhood or inhabitants, without using the best practicable means for preventing or counteracting such smoke or other annoyance, every person so offending, being the owner or occupier of the premises, or being a foreman or other person employed by such owner or occupier, shall, upon a summary conviction for such offense before any justice or justices, forfeit and pay a sum not more than five pounds nor less than forty shillings, and upon a second conviction for such offense the sum of ten pounds, and for each subsequent conviction a sum double the amount of the penalty imposed for the last preceding conviction; provided, always, that nothing in this act shall extend or apply to any glass-works, or pottery-works established and existing within the metropolis before the passing of this act, with the exception, however, of all steam engines, furnaces, and slip-kiln furnaces, employed in and belonging to such works respectively, to which furnaces the provisions of this act shall extend and apply.

* * * * * * *

'3. Provided, always, that the words 'consume or burn the smoke,' shall not be held in all cases to mean 'consume or burn all the smoke,' and that the justice or justices before whom any person shall be summoned may remit the penalties enacted by this act, if he or they shall be of opinion that such person has so constructed or altered his furnace as to consume or burn, as far as possible, all the smoke arising from such furnace, and has carefully attended to the same, and consumed or burned, as far as possible, the smoke arising from such furnace.'

The portions of the act not quoted are of local interest only, and provide for collection of penalties, etc.

On the 29th of July, 1856, an act to amend the act just quoted was passed by the British Parliament, to bring under the action of the law certain furnaces exempted by the act of 1853, viz.: furnaces in glass-works, potteries, public baths, and wash-houses, requiring these also to be so constructed or altered as to prevent the emission of smoke.

The result is, that at the present time, no chimney of any manufactory of the city of London is permitted to pollute the air by smoke.

I offer quotations from the report of Dr. S. F. Morris, one of the Sanitary Inspectors of New York, as of interest in this connection, and also a portion of the last report of the Board of Health of New York on the "Smoke Nuisance."

[Extract.]

"FACTORIES AND WORKSHOPS.—Of these, there is a large number. The smoke from them is a great nuisance, more especially from those where sawdust and shavings are the chief articles of fuel. It is constantly issuing forth in dense volumes, greatly to the annoyance and detriment of those living in the neighborhood. There would be ample remedy for the relief of this if the requirements of the Sanitary Code (section 110) were fully complied with. In two or three instances, where a smoke consumer has been constructed, the benefit is very great. A very small amount of smoke escapes, and that is deprived of its offensiveness by the combustion of the carbon. Several factory owners have expressed their willingness to comply 'if they knew what to do.' This is not considered a valid objection, as there are engineers in the city competent to give the necessary information."

[Extract from the annual report of the Board of Health of the city of New York, for the year 1870.]

"OTHER OFFENSIVE TRADES. * * The attention of the Board has been called to other manufacturing pursuits, located in the crowded parts of this city, as being detrimental to the public health.

"Among these may be mentioned all factories emitting large quantities of smoke, which enters the neighboring tenements, and is injurious to the weak and invalid, if not to those in health, and which deprives the inmates of fresh air and compels them to keep their doors and windows constantly closed. As it is a fact well established in older cities, that this nuisance can be abated at small expense, the Board has adopted an ordinance that, from and after the first of June, 1870, every furnace employed in the working of engines by steam, or in any mill-factory, printing-house, dye-factory, iron-foundry, glass-house, distillery, brew-house, sugar-refinery, bake-house, gas-works, or in any other building used for the purpose of trade and manufacture, shall be so constructed as to consume or burn the smoke arising therefrom, unless a permit to the contrary be obtained from this department.

"Under this ordinance many nuisances of this character have been abated.

"The prevention of the production of smoke by the various manufactories of the city is very desirable, and were an ordinance adopted, merely declaring that hereafter every furnace for steam engines, or other purposes, should be so constructed, as not to permit the discharge of smoke into the air, a great benefit to the community would result."

The simplicity of the necessary change to be made is such that any engineer can understand it, any good workman can effect the change, and its inexpensiveness such that from ten to fifty dollars would cover all needed expense.

The principle of the prevention of smoke is to supply a proper proportion of air in small streams to the gases and carbon which are passing off unburnt.

When a fuel is properly and completely burned, the results of the combustion pass off as steam and carbonic acid gas.

When coke or anthracite coal are burned, no smoke so-called, is seen even if the combustion be incomplete, as the resulting combustible product which is lost, viz: carbonic oxide is colorless; there is, nevertheless, a great loss of heat, as the carbonic oxide is itself fuel, and capable of furnishing much heat by its combustion.

When bituminous (the ordinary Pittsburg) coal is burned, it undergoes what may be considered a partial distillation, very similar to the process carried on in the retorts of the gas-house. The result of this is that for every ton of coal burned, 10,000 cubic feet of gas are given off, which is, in addition to the solid carbon burned, as coke. This ten thousand (10,000) cubic feet of gas requires 100,000 cubic feet of air to furnish the oxygen necessary to its combustion.

It is evident, therefore, that a furnace burning coke, or even anthracite, economically and without smoke, may fail in both respects as a burner of bituminous coal.

The prevention of smoke is, therefore, a very great economy to those using engine fires.

The rule to be adopted for the prevention of smoke in a furnace, or as ordinarily expressed, to make a furnace consume its own smoke, is to introduce by small openings for air, at the rear of the grate bars in what is termed the bridge wall, at the rate of four to six (4 to 6) square inches of opening for air, to the square foot of grate-bar surface. The original patent on the subject was taken out in England by C. W. Williams, thirty-two years ago, and all patents since are either useless, or are modifications of his plan, usually for the worse, both as to simplicity, effectiveness, durability and expense.

The following extract from Dr. Ure's Dictionary of Arts and Sciences is of interest to all concerned, whether as owners or managers of furnaces, as sufferers from the smoke nuisance, or as charged with the original duty of relieving the community from all preventable annoyance.

[Extract.]

'Very ample evidence was presented last session to the Smoke Prevention Committee of the House of Commons, of the successful application of Mr. Williams' patent invention to many furnaces of the largest dimensions, more especially by Mr. Henry Houldsworth, of Manchester, who mounting in the first flue a pyrometrical rod, which acted on an external dial index, succeeded in observing every variation of temperature produced by varying the introduction of the air jets into the mass of ignited gases passing out of the furnace. He thereby

demonstrated that twenty per cent. more of heat could be easily obtained from the fuel, when Mr. Williams' plan was in operation, than when the fire was left to burn in the usual way, and with the production of the usual volumes of smoke.

'It is to be hoped that a law will be enacted in the next session of Parliament for the suppression, or at least abatement, of this nuisance, which so greatly disfigures and pollutes many parts of London, as well as all our manufacturing towns, while it acts injuriously on animals and vegetable life. Much praise is due Mr. Williams for his indefatigable and disinterested labor in this difficult enterprise, and for his forbearance under much unmerited obloquy from narrow-minded prejudice and indocile ignorance.'

Believing that the enactment of an ordinance for the abatement and prevention of the smoke nuisance will prove a general benefit to the community, your action in the direction indicated is urgently requested.

I have the honor to be, sir,
Very respectfully,
Your obedient servant,
C. B. WHITE, M. D.,
President Board of Health."

Of this communication, no notice whatever was taken by the Administrators of the City. Certain citizens, however, took the matter of the nuisance caused by one of these establishments into the Courts, and in this instance secured its abatement. The scientific evidence given upon the trial of this case by officers of the Board, had much to do in securing the decision enjoining its abatement.

Since the date of the communication just given, the exceedingly valuable and interesting work of Robert ~~August~~ Smith, General Inspector of Alkali Works for the Government of Great Britain, published London 1872, has been received. A few excerpts are appended as having interest, and being in general corroborative of the views expressed in the foregoing communication. "The cure of the black carbon, or smoke burning, is in the hands of every man. The smoke is always

blacker as coal is cheaper. Our towns are not in earnest on the subject."

The opinion was advanced in Court that the law on the subject of smoke burning in London is not enforced. Immediately bearing on this point he says:—"The experiment was made at the Sugar-Refinery of Messrs. Fryer, Benson and Foster, who offered every facility, and *allowed me to make the blackest smoke* occasionally for a few minutes; the *same permission* being given by the *City Authorities.*" The fact is, the smoke of London proceeds from the myriads of chimneys of private dwellings, and not from the chimneys of manufactories, and it has been stated to the Board, that from any elevated position, on a clear day, the eye can range over scores of the tall chimneys of various manufactories without seeing a puff of black smoke.

He says:—"It seems perfectly clear that the black smoke contains not only unburnt carbon, but unburnt gases. The actual amount of free carbon is small; the amount of gas is large."

"'Carbonic Oxide' exists only in connection with the black smoke not permitted by Parliament, and it is fortunate that it should be put down, as it is one of the most poisonous of all gases."

"There is a mode of consuming smoke which consists in simply blowing into the furnace a jet of steam. The effect is instantaneous and remarkable. A clear flame is produced in a few seconds."

"The manufacturer's interest is not to make black smoke because it is expensive."

"The public are interested in its prevention, because it adds an unwholesome gas to those gases and solids already contained in ordinary smoke."

"The excessive amount of air used entails an enormous loss of heat. This has not been calculated."

"As to the modes of burning black smoke, the attempts of many have failed because, although they applied air, they did not at the same time consider *heat, time* and *due mixture.* I have seen some very efficient methods, but it is difficult to say, in the majority of cases, whether they owed their result to the

skill of the individuals. This much is clear, that so long as we use the primitive method of merely lighting a heap of coals under a boiler, in order to get steam, our results will also be primitive."

SANITARY OPERATIONS.

It seems appropriate, in connection with this part of the report, but before entering upon its discussion, to make mention of the sudden and unexpected decease, on the 11th of April, of the Sanitary Inspector of the Second and Third Districts, the very able, conscientious, efficient, sincerely esteemed and regretted, Dr. Frederick B. Albers. His service with the Board had lasted more than three years—a period during which he brought to the discharge of his duties, careful thought, great attention, and unflagging persistence. His exercise of his office reflected credit upon himself and those who selected him for his position. At the meeting next following his death, a memorial of respect and regard for the deceased, was adopted by the Board of Health and spread upon its minutes, and appeared in the daily journals, as follows:

"OFFICE OF THE BOARD OF HEALTH,
State of Louisiana.

"At a regular meeting of the Board of Health, held Friday, May 3d, 1872, the death of F. B. Albers, M. D., Sanitary Inspector of the Second and Third Districts, was officially reported to the Board by the President. The following expression of respect and regard for the deceased, was adopted and ordered to be spread upon the minutes.

"Dr. Frederick B. Albers was graduated at the Medical Department of the University of Louisiana, in 1851, and immediately thereafter entered upon the practice of his profession in this city.

"Having an excellent mind, great thoroughness of preparation, industrious habits, fine personal appearance, courteous, though quiet manners, he very soon achieved marked success.

"Up to April 11th, the date of his unexpected and untimely death, he enjoyed a remunerative and well extended practice.

"In 1868, Dr. Albers was elected one of the Sanitary Inspectors of the Board of Health. To the duties of this position

he brought the complete and undiminished physical strength of mature manhood, the full mental force of earlier years, widened by twenty years of reading, of professional experience and of contact with men; great method, remarkable executive ability, and a cheerful, unfailing willingness to work. Placed in charge of the infected districts, when the city was threatened with general epidemic in 1870 and 1871, his cares and labors were numerous, incessant and diverse; but the responsibility was borne easily, the work done cheerfully, systematically and thoroughly.

"The Board of Health place on record their high respect and sincere esteem for Dr. F. B. Albers as officer, as citizen, as physician, as a man. By his most unexpected and untimely death, we are greatly saddened, and feel a deep and warm sympathy with the afflicted family of the deceased, in their irreparable loss.

"A true copy from the minutes.

"S. C. RUSSELL, M. D.,

"*Secretary of the Board.*"

The communication which follows is self explanatory:

OFFICE BOARD OF HEALTH,

MOBILE, ALA., April 15th, 1872.

"DR. RUSSELL—*Dear Sir:* Our Board unites with you in regret at the unfortunate death of Dr. Albers, whose energy and efficiency in the labors of the Health Department, have been so beneficial to the community in which he lived and to sanitary science. By the promising result of his efforts, we have been greatly encouraged in our up-hill work, and intend to follow his example in the management of cases and districts, in case of the approach of epidemic sickness.

"Very truly yours,

"G. A. MOSES, M. D.,

"*Secretary.*"

The President of the Board of Health is, by its authority, "ex-officio" Superintendent of Sanitary Inspection. The officers of the Metropolitan Police force, detailed by the Metro-

politan Police Board, for sanitary duty, report to the President of the Board of Health, and by him are assigned to duty with the Sanitary Inspectors of the several districts. Thus detailed and assigned, they attend to the work laid out for them by Sanitary Inspectors, and the President of the Board, and save in cases of public emergency, receive orders only from the Board of Health.

The President of the Board of Health, in his report to the Board, of his examination of the workings of the Board of Health of the city of New York, stated that the only defect he saw in its otherwise admirable organization and effectiveness, was that the large Sanitary Police force of that city *were not under the control of the Board of Health* and *made no systematic inspections.* All that was done in this department was the small amount, that a single medical officer to very large inspection districts, could accomplish. The Board are convinced that the relations and duties of the Sanitary Police in New Orleans, as arranged by the wise action of the General Assembly of 1869, are in this particular greatly superior to the otherwise admirable organization in New York.

The general plan of sanitary operations adopted, was that of a house to house inspection to be finished by May 15th, and thereafter, repeated inspections of those portions of the city most crowded in population, and most likely to originate disease. Owing to political excitement, the police officers detailed to do sanitary duty under direction of the Board of Health, were withdrawn for some weeks immediately at the beginning of the year; and again at the close of the year, a similar necessity for a season, deprived the Board of their services.

As a result, the general inspection was not finished till July, and large as is the amount of work done, it represents not a *year's* work, but that of about ten months.

Twelve police officers have done duty with the Board during the year, and have, as a whole, done credit to themselves and the force to which they belong.

The Board of Health take great pleasure in testifying to the cordiality of the understanding between itself and the Hon.

Metropolitan Police Board, and to the promptitude of the aid afforded by it in all matters bearing upon the health of the city.

The following table gives some facts of interest, obtained during the house to house inspection, and exhibit the amount and general character of the sanitary labor done during the year:

HOUSE TO HOUSE INSPECTION.

Total number of premises	40,720
Total number of premises with hydrants	6,234
Total number of premises with cisterns	25,405
Total number of premises with cisterns and hydrants	6,605
Total number of premises with no water supply	921
Total number of houses built of wood	27,886
Total number of houses built of iron	16
Total number of houses built of brick	11,381
Total number of animals (horses, 2685; mules, 3887; cows, 786; hogs, 544*;)	9,272
Total number of vacant lots	3,879
Total number of persons occupying premises	196,691
Total number of rooms (First, Fourth and Fifth Districts only)	72,455

GENERAL SANITARY WORK.

Number of inspections made	69,953
Number of re-inspections	12,705
Number of nuisances found requiring abatement	14,815
Number of notices served to empty vaults	10,258
Number of notices served to rebuild vaults	624
Number of notices served to repair vaults	434
Number of notices served to disinfect vaults	4,750
Number of notices served to clean premises	752
Number of notices served to fill lots	116
Number of notices served to drain lots	131
Number of notices served to remove hogs	198
Number of notices served to supply water	114

* Only obtained in First, Third and Fourth Distri ots.

Number of notices served to repair houses	33
Number of notices served to raise and drain alleys.....	62
Number or dangerous buildings reported.....	12
Number of premises disinfected	160
Number of premises fumigated	58
Number of cases of small-pox.....	69
Number of cases of yellow fever.....	83
Number of persons reported for non-compliance.....	161

During the year the Board of Health has officially declared five hundred and ninety-six premises, or portions of premises to be nuisances, and ordered said nuisances abated. In a certain portion of these, the nuisance consisted in water standing under houses, low lots, or deficiency of drainage, leaky roofs, premises without proper water supply; but the much larger number were privies, leaking or over-flowing into the yards of owners and neighbors.

It is surprising to see from the records, how nuisances of this sort from neighboring premises have been endured, in some cases *for years*, because until the grant of its present powers to the Board of Health, there was no remedy, save by the tedious, expensive, and uncertain process of a suit at law.

During the early part of the year, the streets remained for weeks in a very filthy condition. The cleansing and general method of management of the city streets, has in former reports met the decidedly expressed disapprobation of the Board.

That the opinions thus expressed might have due weight with the city authorities, a letter was addressed to the experienced and able Engineer, G. W. R. Bayley, Esq., asking his professional opinion on the principles advanced, and plans proposed. This communication and his reply thereto will be found in the appendix at the close of the report.

The following communication was made to the Hon. City Administrators, that their attention might be directed to the subject.

It is believed that the principles laid down, and the methods suggested, are agreeable to common sense and to science:

"OFFICE BOARD OF HEALTH,
159 Canal street, May 11, 1872.

"HON. B. F. FLANDERS, *Mayor of New Orleans:*

"*Sir*—At the last meeting of the Board of Health held Friday, May 3, 1872, the condition of the streets was a matter of report and discussion.

"Some suggestions as to the best method of improving the state of the street gutters, with the means at the disposal of the city, were unanimously approved by the Board.

"The Board of Health recommend that where hydrants exist, the gutters of streets perpendicular to the river be flushed at least every second night, in the following way:

"Open not less than four to six hydrants on each gutter o f a street, the plugs to be those nearest to the Levee. The person or persons opening them, to pass on to the next street and open plugs in a similar manner, and thence to the next street, and so on.

"When the plugs first opened have been running, say 30 minutes, another person, or other persons, should follow the persons opening hydrants along the city front, to shut off the water.

"The Honorable Administrator of Waterworks informs me that the power of the pumps is sufficient at night to keep, at the upper portion of the city, twenty-five (25) hydrants running at once, so that from four to six streets could be undergoing the process of flushing at the same time. In the lower part of the city three streets could be flushed simultaneously.

"As a preliminary to this process, all bridges should be examined, and when necessary, as in a very large number, they should be raised and the accumulations of filth, which interfere with rapid currents of water, be removed.

"The accumulated decomposing animal and vegetable filth, thus thrown out from under the bridges, should by no means be spread upon the streets or allowed to remain in them, as is the present practice, but should be at once removed so far to the rear of the city, that the noxious gases given off by its decomposition would be blown away by the prevailing winds

of the season, and thus the community be freed from a certain and powerful source of disease.

"The gutters of the streets parallel to the river should be cleansed, and, when practicable, washed towards the gutters of the streets running at right angles to the river, and all semi-liquid filth be allowed to remain in the gutters, and the process of "ladling out" this horribly offensive matter into the streets entirely dispensed with.

"It is recommended that those in charge of street cleaning, be furnished with sections of hose long enough to conduct the water from a hydrant across the street. There are numerous blocks in the city in which the gutter of one side is tolerably clean, because of the occasional flow of the water of a hydrant upon that side, while the gutter of the opposite side remains for days together a mass of fermenting, pestiferous putrefaction.

"The remedy is exceedingly simple—a piece of hose and eight minutes work. The result will be relief from nauseous sight and smell, and cleanliness and health, as far as that gutter is concerned.

"When the hydrants are opened in the manner recommended, a force of men should be stationed along the street to remove solid matters, as bricks, etc., which would obstruct the flow of water, and to *stir up* all semi-liquid filth, and enable the strong current, which the gutter running full of water would furnish, to carry these matters toward the rear of the city.

"Whenever an accumulation occurs, unmanageable by the flow of water, then the matters should be thrown out and the street carts immediately carry them away.

"In that portion of the First District, in rear of the Camp street canal, hydrants should be opened and street gutters be managed as suggested for the front of the city.

"A large number of the hydrants of the city are improperly placed as regards street cleaning and sanitary purposes. Hydrants should be placed in the *centre* of the blocks, of the streets parallel to the river, as the water can then be used to wash the gutters of these streets, and thereafter to wash the gutters of streets perpendicular to the river, and is as available

for use in case of fire, as if located on streets running at right angles to the river.

"The Board is pleased to see that Hon. Mr. Delasize in the extension of the Waterworks recently made in the Third District has adopted this plan.

"At as early a date as practicable, all hydrants near the corners of streets parallel to the river, should be removed to the centre of the block.

"At present, at the corners of most streets, narrow, stagnant ponds of semi-liquid filth exist. If the flushing before mentioned be carried out, even if the foul matters at these street corners be not wholly carried away, the foul fluid will to a great extent be replaced by water less foul, and great sanitary benefit result.

"The only argument to be brought against this mode of cleaning and flushing the streets recommended, is the filling up of the drainage canals by filth from the streets. These canals being located to the northward of the habitations of citizens, they can, if necessary, be cleaned with slight danger to the health of the people as compared with the sanitary situation as at present existing, with the filth at the doors of the houses, its odors disgusting to the nose, its appearance repulsive to the eye, and its dangerous exhalations filling the lungs and poisoning the blood.

"If, however, sufficient water be used, and the draining canals be pumped out with sufficient frequency, these canals will not be offensive, and the obstruction from accumulation be but moderate.

"The plan heretofore recommended by the Board of Health should be immediately put into effect, viz.: The erection of gates, self-acting or otherwise, which should shut out the sewage from the new canal, now being dug by the City Draining Company, from the Canal street sewer, from Broad street canal and from Hagan avenue, south of Customhouse street.

"Were this done, the flow from the hydrants used for flushing, on the method recommended in this communication, would keep Galvez Canal free from bad and dangerous exhalations, and the whole system of canals between the old and new navi-

gation canals, receiving only rain water, would in a short time lose all foul smell and cease to be a reproach to engineering, sanitary and city authorities.

"St. Mary and St. Andrew streets, of the Fourth District, are in a filthy condition—the water of the river not yet having reached the level of the sluices.

"The gutters of the streets parallel to the river being greatly out of grade, the water can by a slight obstruction at the corner of a street where water is running, be turned across through the gutter of the street parallel to the river, so as to run down the gutters of the street where water is not flowing. It is recommended that this simple and cheap engineering plan be carried out, and the water thus turned on for four or five hours a day through these streets and others in like condition.

"In connection with the value of water as a disinfectant, it is proper to call to mind the great lifting property of water, a brick weighing say 30 per cent. less in water than in air, also that the velocity of currents of water is determined by the quantity flowing, as well as by the amount of fall. In this way a current of water of fifteen inches in depth, flowing through our gutters, has a vastly greater carrying and removing power than one of only four inches in depth, though the fall be the same in each case.

"The Mississippi river has a fall not to exceed one and a half inches to the mile, but has a current of say seven miles per hour.

"Bayou Lafourche, with a fall of five or six inches to the mile, has a current of but four or five miles per hour.

"The first mile of our street gutters, from the river towards the swamp, has a fall of several feet.

"The Board of Health earnestly recommend, that whatever else be left undone, that the street gutters be flushed every second night with large quantities of water, let on at the highest practicable points and so managed as to keep every gutter running full of water for at least thirty minutes.

"I have the honor to be, very respectfully,

Your obedient servant,

C. B. WHITE, M. D.,

President Board of Health."

On the 6th of May, another communication was addressed to the City Administrators, suggesting a plan for providing the Fourth District with water, and urging its immediate adoption, for sanitary purposes, as follows:

OFFICE OF THE BOARD OF HEALTH,
New Orleans, May 6, 1872.

HON. B. F. FLANDERS, *Mayor of New Orleans:*

Sir—At the monthly meeting of the Board of Health, held Friday, May 3d, 1872, the following resolution was adopted:

Resolved, That the Board of Health recommend that a main of not less than sixteen (16) inches in diameter be immediately laid down from the water works on Richard street, along the river front, to the upper side of Louisiana Avenue, and that said main be provided with arrangements for the discharge of large quantities of water into the gutters of the streets perpendicular to the river, from Richard street to Louisiana Avenue.

The Board of Health recommend immediate action, as the river level, will in a few weeks, be too low to allow the river waters to run through the gutters, and, in consequence, during the months of June, July, August, September and October, the precise time when perfect sanitary condition is most desirable, no means will exist of securing cleanliness of the street gutters of that portion of the city, save by securing the very expensive services of the "Tyler"—the property of the Board of Underwriters.

The great value of the arrangement proposed, in case of fires occurring in that portion of the city, is self-evident.

I have the honor to be, sir, very respectfully,
Your obedient servant,
C. B. WHITE, M. D..
President Board of Health.

It will be seen that its value in case of fire was deemed self-evident, and required no remark. Officers of this body called upon members of the Council, and urged its adoption.

It was found that the cost of the contemplated improvement would not exceed seventy five thousand ($75,000) dollars.

Within a month after the sending of this communication, property to the amount of seven thousand five hundred dollars was burned in the district to have been supplied with water by the proposed arrangement; and up to this date, forty thousand dollars additional property value has been burned for lack of the water main, recommended by the Board of Health. The citizens have expended about fifty thousand dollars, have no water main, but have the ashes of their dwellings, and the certainty of future destructive and extensive fires.

Later in the year, the Board of Health adopted and forwarded to the Mayor, the following resolutions:

OFFICE OF THE BOARD OF HEALTH,
New Orleans, July 22, 1872.

HON. B. F. FLANDERS, *Mayor of New Orleans*:

Sir—I have the honor to state, that at the weekly meeting of the Board of Health, held Friday, July 19, 1872, the following resolutions were adopted, and the President of this Board was instructed to forward a copy of the same to the Hon. Board of City Administrators:

Resolved, That whenever, during the next ten weeks, a period of thirty-six hours shall elapse without the fall of rain in sufficient abundance, to thoroughly cleanse the streets, the Board of Health respectfully recommend that the street gutters of the Fourth, and lower portion of the Sixth Districts, be thoroughly flushed from the river by the "Tyler," or by similar means.

Resolved, That when liberal rains do not fall for a period of thirty-six hours, as before mentioned, the Board recommend that the hydrants of the city be opened, especially those located on the streets parallel to the river, and that if necessary, the Water Works engines be kept at work during the whole night; and that sections of hose be supplied to the persons opening the hydrants, by which both sides of a street may be cleaned by the water from a single hydrant.

The Board of Health call attention to the numerous gutters remaining for days, filled to several inches in depth, with de-

caying, fermenting filth, and on these very gutters a hydrant standing unused, whose waters would, if turned upon the gutters, in a few moments remove all this matter, so disagreeable to both sight and smell, as also so very injurious to health.

I am instructed to state also, that if proper means are not taken to wash these foul gutters effectively and regularly, the Board of Health may consider it their duty to disinfect them under its own supervision.

This plan is imperfect, and will prove a very great expense to the city, as compared with the use of water by the Water Works as proposed, were a systematic plan adopted.

It is respectfully suggested that the Board of Police Commissioners might coöperate in this important labor of cleanliness and health, by allowing certain of the night policemen to aid in turning on the water from the hydrants during the night, and thus some slight expense be spared to the already overburdened city.

The Board of Health have always received thorough and cordial assistance from the Hon. Board of Police Commissioners, whenever they have been called upon for aid in sanitary matters.

I have the honor to be, sir,
Very respectfully,
Your obedient servant,
C. B. WHITE, M. D.,
President of the Board of Health.

Serious effects would have undoubtedly followed the neglect of all provision for supplying water and cleansing the streets, but for heavy showers which fell at brief intervals, until about the middle of August. By the water thus furnished, streets and gutters were washed, the draining canals filled with nature's disinfectant in such quantity, as to enforce their frequent emptying, and the discharge of their contents at a good distance from the city habitations.

In their last report the subject of streets, street-gutters, and drainage canals, was made matter of somewhat extended discussion. The Board has in no wise changed its views on this

subject, but expresses its opinion that the system of drainage now being executed in the vicinity of New Orleans, and the management of its streets, street-gutters, and drainage canals, are wrong, both in principle and in methods of execution.

A board of the most competent engineers and the best sanitary authorities should be convened, and a plan of sewage and drainage devised that will be suited, both to present and future necessity, and all permanent improvements in this direction should be only parts of this one carefully devised general plan.

The Board of Health makes earnest protest against the plans of sewage and drainage now being carried out in the rear of New Orleans, as entirely unsound on engineering and sanitary principles, and recommends the interference of the General Assembly, and the appointment of the Board of Works just proposed.

DISINFECTION AND DISINFECTANTS.

The Board of Health, through the President, on the 1st of July, issued a circular, which was also published in all the daily papers, recommending the liberal use of disinfecting agents during the summer months. Similarly, suggestion was made as to the treatment of the large accumulations of house offal, whose prompt removal was prevented by the prevalence of the epizootic among horses and mules.

The circular upon disinfectants alluded to, and the ordinance bearing upon the subject, as published at the same date, are appended:

OFFICIAL.

OFFICE OF THE BOARD OF HEALTH,
New Orleans, July 1, 1872.

The Board of Health recommend to their fellow-citizens the liberal use of deodorants and disinfectants during the summer months.

The best and cheapest disinfectant and deodorant for privy-vaults, cess-pools, and all places where the decomposing ani-

tary importance, and urges upon every householder immediately to use the means herein recommended, to free himself and family from the noxious influence of these ill-smelling, unwholesome exhalations.

C. B. WHITE, M. D.,
President Board of Health, State of La.
S. C. RUSSELL, M. D.,
Secretary of the Board.

An ordinance relative to the disinfecting and deodorizing of privies and privy vaults.

SEC. 1. Whenever in the opinion of the proper officer or officers of the Board of Health, of the State of Louisiana, any privy or privy vault, shall be in a condition such as to require the same to be disinfected or deodorized; he or they shall cause notice thereof to be given to the owner or tenant of the premises where such privy or privy vaults may be, to deodorize or disinfect such privy or privy faults, within a delay of thirty-six hours, and for any refusal or neglect to obey such notice, within said time, such offender shall be held liable to a fine, not exceeding the sum of ten dollars.

In all cases where the Board, by its officers, enforced *permanent* disinfection, this liquor of iron and zinc chlorides, was used, which, at the suggestion of Dr. Perry, for the sake of convenience and distinctiveness, was designated the "zinc-iron" disinfectant.

This disinfectant proved satisfactory, and though cheaper than that recommended last year, is not so cheap as disinfectants should be to secure their general use.

The poorer people are, the more largely they require them, the rich having comparatively little necessity for them.

The use and advantages of disinfectants should be so well understood that no person, however poor, would endure a foul odor; disinfectants be so cheap, that five to ten cents would buy a considerable quantity, and the demand be so general, that every corner grocery would find it to its interest to keep a supply for its customers.

OSCILLATIONS
OF THE
MISSISSIPPI RIVER AND OF THE SUB-SOIL WATER OF THE CITY OF NEW ORLEANS

from daily observations by the Board of Health.

The people being first caused to remedy nuisances, by enforced use of disinfectants, finding them cheap, convenient to obtain, and experiencing their usefulness, will in time become educated, and there will be voluntarily and easily effected for the health of the city, much more than the Board can now effect in this direction by great firmness and assiduity.

This desirability of cheap disinfectants, and the efforts made by the Board to that end, has, it is believed, partially secured the wished for result. Through the enterprise of Messrs. Stern & Co., hydrochloric acid is now being manufactured in New Orleans, and is furnished to consumers here at the same price as sold in New York. The "zinc-iron" disinfectant costs delivered at the wharf, fifty cents per gallon. If the present arrangements are effected, it can be furnished next year at twenty-five cents per gallon. As from one to two pints will deodorize any ordinary vault, and so maintain it for from ten to twenty days, it will seen that for next year the use of disinfectants will probably be much more extensive than even last year.

The method of disinfection in cases of small-pox has been the same as that in former years; namely, the free disengagement of chlorine from the usual salt, manganese, water and sulphuric acid mixture, into infected apartments, and the burning or boiling of infected garments.

In Dr. Perry's report, will be found the methods of disinfection adopted in his district in reference to yellow fever.

Great difficulties are experienced in putting theories of disinfection in yellow fever into practical operation.

Where so much is unknown, disinfection is of necessity, to a large extent empirical, and when the rigorously prepared circumstances of a chemical experiment are lacking, as in the attempted destruction of yellow fever poison, hygiene can but patiently labor and bide its time.

SUB-SOIL WATER.

Since February 1st, a daily examination of the height of water which pervades the soil underlying the city, has been kept up in the First, Second and Fourth Districts, throughout the year. In the Third District it was irregularly kept, owing

to change of officers, and in the Fifth District was not begun till later in the season. It is found, as stated last year, that contrary to the generally received opinion, the height of sub-soil water is *not* influenced by the rise and fall of the Mississippi river, but its oscillations depend on rains and droughts. It is found that these variations of level are much more sudden, and have a wider range, in the sparcely built part of the city, or where there are no buildings near the well, as in the Fifth District (Algiers .

The well of the Second District is in a portion of the city closely built in brick, with deep foundation walls. The well in the Fourth District is surrounded by wooden buildings built upon pillars, which offer no resistance to the drainage of the surface water of the ground into the well.

To test the value of deep canals in draining the sub-soil of its water, a series of six wells were selected on a line nearly parallel to the Melpomene Drainage Canal, and located in the squares from Camp street to Dryades street. None could be found at a distance from the canal of less than ninety feet.

The water in these six wells, rose and fell, as in all other wells examined by the sanitary officers, according to the presence or absence of rain, and were in no wise influenced by their vicinity to the deep canal, which is usually maintained in an empty state, and is only temporarily filled by heavy rains, as its contents are immediately pumped out by the Melpomene Street Draining Machine.

In the accompanying chart is shown the line of oscillation of one of these wells, and its relations as to depth, etc., to the depth of the Melpomene Canal.

The bearing of this fact on the sub-soil drainage of the city by means of canals similar to the Melpomene, is deserving of careful consideration.

It shows that the excrementitious matters in privy vaults, do not sink down into quick sand, to be destroyed and made harmless by the water, but that decomposition goes forward, and that its results are exhaled into the air, or if the vault be defective, they to a certain extent permeate the *upper*, loamy layer of the earth.

Examination by Dr. Perry has shown, however, that in the cases investigated, waters of wells in the near vicinity of privy vaults are not perceptibly affected by them.

In this city the water of wells is never used for culinary purposes or for drinking. The investigations alluded to were for purpose of testing the transmissibility by the soil. of the products of the decomposition which takes place in the vaults of the city.

LABORATORY.

Reports of some of the work done by Dr. A. W. Perry, chemist to the Board, will be found at the close of the report. A number of disinfectants have been examined, and found less valuable than those already known, and usually much more expensive.

The analysis of the mud of our street gutters, showing the great amount of animal and vegetable matter therein contained, and the mode by which this matter is at present to a great extent got rid of, by *sewage into the air*, is one of scientific interest, and of the utmost sanitary importance.

Attention is invited to some analyses of the atmosphere at various places in the city, as illustrating the amount of decayed or decaying matters in the air, and the extent to which local, and frequently preventable, causes determine its presence.

LIBRARY.

The collection of books hitherto made by the Board, is at present very small, and is less to be considered a library than the beginning of one. Nearly the whole number on the list which follows, have been accumulated during the year 1872. Included among them may be noticed the Reports of John Simon, F. R. S., Chief Medical Officer of Her Majesty's Privy Council of Great Britain; and also certain reports from India, of especial value as emanating from scientific men in localities somewhat similar to New Orleans, though more tropical.

For these the Board is indebted to the officers of Her Britannic Majesty's Government, and to the kind offices of Mr. Foublanque, the very courteous British Consul at the City of New Orleans.

It may not be improper to remark, that the present Board of Health received from its predecessors neither books, instruments, or any material of literary or scientific value whatever.

A proper regard for the interests of sanitary science requires yearly additions of new works upon subjects relative to the duties of the Board. Hygiene, as a science, is making rapid progress; and to no people, and to no Board of Health, is the widest and most extensive knowledge of hygiene, and kindred sciences, more important than to those of New Orleans.

CATALOGUE.

Principles of Philosophy.....*Herbert Spencer*
Principles of Biology..... " "
Principles of Psychology ... . " "
Conservatism and Correlation of Forces.....*Grove*
Physics .....*Ganot*
The Sun, Ruler of Planetary System .....*Proctor*
Spectrum Analysis .....*Roscoe*
Geology .....*Page*
Mineralogy.....*Dana*
Paleontology ....*Owen*
Botany .....*Balfour*
Medical Dictionary ....*Dunglison*
Heat as a Mode of Motion .....*Tyndal*
Notes on Electricity..... ..... "
Theory of Heat .....*Maxwell*
Lay Sermons and Addresses ....*Huxley*
Introduction to Classification of Animals..... "
Anatomy of Vertebrated Animals ..... "
Methods of Study in Natural History .....*Agaziz*
Seaside Studies in Natural History..... "
Forms of Animal Life.....*Rolleston*
Taxidermist's Manual.....*Fullerton*
Genesis of Species .....*Mivart*
Descent of Man .....*Darwin*
Origin of Species ..... "
How the World was Peopled ....*Fontaine*
Nature (four volumes).....

Journal of Science (one volume).....
Science Gossip, " " .....
Journal of Botany, " " .....
Dew.....*Wells*
Handy-Book of Meteorology .....*Buchan*
Admiralty Manual of Scientific Inquiry.....*Herschel*
Rain: How, Where, When and Why Measured.....*Symonds*
Signal Service, U. S. A. Report of 1871 .....*Meyer*
Dudley University. Report of 1871 .....*Hough*
Central Park Observatory. Report of 1870–71 .....*Draper*
Chemistry (two volumes).....*Graham*
Manual of Qualitative Chemical Analysis .....*Fresenius*
History of Chemical Theory .....*Wurtz*
Agricultural Chemistry .....*Liebig*
Chemical Handicraft .....*Griffin*
Laboratory Guide .....*Church*
Chemical Analysis .....*Noad—Morfit*
Gasometry .....*Bunsen*
Chemistry of Common Life (two volumes).....*Johnson*
Volumetric Analysis.....*Scott*
Chemical News (8 volumes).....*Crookes*
American Chemist (4 volumes).....*Chandler*
Dictionary of Arts and Sciences .....*Ure*
Chemical Recreations .....*Griffin*
Water Analysis.....*Wanklyn & Chapman*
Agricultural Analysis.....*Caldwell*
Chemical Testing of Wines and Spirits.....*Griffin*
Beton-Coignet .....*Beckwith*
Combustion of Coal .....*Williams*
Petrolia: Its History and Development.....
Hydro-Carbon Oils .....*Antisell*
Coal Oils .....*Gesner*
Coal Gas: Manufacture of .....*Clegg*
Lead Pipe: Reports and Opinions.....*Kirkwood*
Ventilation .....*Reid*
Warming Buildings .....*Hood*
Air and Rain: The Beginnings of a Chemical Climatology.....*R. Angus Smith*

Adulterations of Food.....*Hassall*
Practical Hygiene.....*Parkes*
Physical Education.....*McLean*
Hygiene.....*Hammond*
The Antiseptic System.....*Sansom*
Sewage of Towns.....*Carpenter*
Treatment and Utilization of Sewage.....*Corfield*
The Microscope and its Revelations.....*Carpenter*
Microscopical Manipulation.....*Suffolk*
How to Work with the Microscope.....*Beale*
Journal, Royal Microscopical Society, Vol. 2.....
Journal, Queckett Club, Vol. 1.....
The Lens, Vol. 1, 1872.....
Photo-Micrographs.....*Woodward*
Microscopic Fungi.....*Cooke*
British Fungi (2 volumes)..... "
Entozoa.....*Cobbold*
Infusoria (colored plates).....*Pritchard*
Insects Injurious to Vegetation.....*Harris*
Diseases of Cattle in U. S.....*Gamgee*
Origin of Lowest Organisms.....*Bastian*
The Beginnings of Life (2 volumes)..... "
Disease Germs: their Supposed Nature.....*Beale*
Disease Germs: their Real Nature..... "
Yellow Fever.....*LaRoche*
Yellow Fever of 1853.....*Sanitary Commission*
Yellow Fever.....*Barton*
Southern Medical Reports.....*Fenner*
The New Orleans Medical and Surgical Journal, from 1844 to 1861.
Reports of John Simon, F. R. S., Chief Medical Officer of the Privy Council of Great Britain, for the years 1858, '59, '60, '61, '62, '64, '65, '66, '67, '68, '69, '70.
Report, General Board of Health.....
Cholera Epidemic: Report of 1854. London.
Deodorizing and Utilizing Sewage. Rep., '57...*H. Austin, C. E.*
Sewage of Towns. Commission's Report, 1861.
Sewage of Towns. Report, 1865.

Sanitary Commission, Madras. Report, 1870.
Sanitary Commission, Government of India. Report, 1870.
Royal Sanitary Commission, on Sewage, &c. 1869.
Special Report, Metropolis Water Bill.
Report of Sanitary Commission, Bombay, 1870.
Second Report of the Royal Sanitary Com'n (3 vols.), 1871.
First Report, Pollution of Rivers Com'n (2 vols.), 1870.
Second Report, " " " 1871.
Third Report. " " " 1871.
Report of Gas Referees on Sulphur Question. London, 1870.
The Smoke Nuisance: Act of Parliament to Abate.
Metropolis Local Management: Act to Amend. 1862.
Reports, Board of Health, New York. 1866 to 1870.
Smithsonian Institute. Reports, 1863 to 1870.
Department of Agriculture. Reports, 1870–71.
Geology of Indiana. Report, 1871.
Geology of Ohio. Report, 1871.
State Registry of Vital Statistics, Michigan, 1870.
State Board of Health, Massachusetts. Reports, 1871–72.
Board of State Charities, Massachusetts. Report, 1870.
Board of Education, Connecticut. 1871.
Medical Report, Surgeon General's Office, U. S. A.
Circular No. 1: Report on Epidemic Cholera and Yellow Fever in the United States, 1867-68.
Circular No. 2: Report on Excisions of the Head of the Femur, for Gunshot Injury. 1869.
Circular No. 3: Report of Surgical Cases in the Army. 1871.
Circular No. 4: Report on Barracks and Hospitals, with description of Military Posts. 1870.
Circular No. 5: Report on Epidemic Cholera, 1867.
Circular No. 6: Reports on Extent and Nature of Materials available for the preparation of a Medical and Surgical History of the Rebellion. 1865.
Mortality of the United States, by States and Territories. Census Bureau.

During the year, the purchase has been made of a fine microscope, the work of Messrs. R. & J. Beck, London, with accom-

panying apparatus, including objectives of $1\frac{1}{2}$, $\frac{3}{4}$, 1-5, $\frac{1}{8}$, 1-10 immersion, and 1-20 inch focus, an illustrative cabinet of two hundred and fifty specimens, and a microscopical mounting case. A set of meteorological instruments, including a self-registering aneroid barometer, hygrometer, maximum and minimum thermometers, two (earth and sun) radiation thermometers, several hydrometers and chemical thermometers, as standards, and two medical thermometers, were also purchased.

The Board is still in debt for these instruments, and will be obliged to return them, paying largely for their use and damage, unless further aid be given. Farther on in the report remarks occur on the financial condition of the Board, with explanations and suggestions.

METEOROLOGY.

During the last six months of the year, frequent observations have been taken of those natural phenomena, by all scientific men agreed upon, as of importance, and as likely to have influence on the health and life of the community.

The whole labor of these observations and records has been done by Mr. Stathem, in addition to his other duties in the office. They have been made with regularity, care and accuracy. His report, with tables, is to be found farther on, and the lithographic chart, showing lines of mortality by ages and diseases, and also exhibiting lines of temperature, humidity, barometer and rain-fall, was prepared by him.

VITAL STATISTICS.

The accurate and complete registration of births, marriages and deaths, and the various particulars connected therewith, form the basis of the study of Vital Statistics. The importance of this study with reference to the well being of towns and States, is so generally admitted in all civilized countries as to require no argument upon the subject.

The Board of Health has at present no opportunity to compile such statistics in the city of New Orleans, save as the Sextons of the City Cemeteries are obliged to make weekly reports of all interments.

The Board of Health recommend that the duties of the Registrar of Births, Marriages and Deaths in the parish of Orleans, be made, by enactment, a part of the duties of the Board of Health, and that the fees exacted for this registration, go to its general support; thus relieving the State from an unnecessary burden of several thousand dollars a year. There is no reason against such a course, and every reason in its favor.

It is also recommended that the Board of Health be ex-officio State Registrar of Vital Statistics, that the optional registration now allowed in the several parishes, be made an enforced one, that the parish recorders make reports to the State Registrar so created, and thus the foundation be laid for thorough knowledge of the laws of health and viability in the State, and that such reports thereafter be made to the General Assembly, as is customary in all communities of advanced civilization.

The Board recommend also the passage of a general law providing for the creation of local Boards of Health in all towns of the State, of one thousand inhabitants and upwards. Such Boards to be appointed by the local authorities, to be partly at least, composed of physicians, and when organized, to possess the same powers in the districts which they control, in reference to sanitary matters, as those now exercised by this body, in the city of New Orleans.

CONCLUSION.

At the beginning of the year, the financial plans of the Board were carefully considered, and its arrangements made to bring its expenses within its receipts, or as nearly so as is practicable, where so many elements of uncertainty are included. This expectation has not been realized. The very great loss on State warrants, diminished the anticipated funds from that source, not less than eighteen hundred dollars, and the receipts from quarantine dues most unexpectedly fell short forty-four hundred and thirty-two dollars, a total deficiency, in money, of sixty hundred and thirty-two dollars. A deficiency which, if it had not occurred, would, as will be perceived by the statement below, not only have enabled the Board to pay

all its obligations, but to purchase the additional instruments imperatively needed, and to secure the addition of the books and scientific journals contemplated at the time when the request for aid for that purpose was made, viz., at the date of the last Annual Report.

The following memoranda, from the report of the Treasurer, show the indebtedness of the Board on January 1st, 1873:

To Supplies furnished Mississippi Station	$ 911 58
To Salaries Unpaid	1551 30
To Scientific Instruments	1147 00
To Court Fees	277 25
To Quarantine Boat for Mississippi Station	206 70
To Stationery, Printing, etc.	604 73
To Furnishing and Repairing Office	108 74
To City Papers	78 25
To Disinfectants	26 78
To Sums Hired, unpaid	450 00
Total amount of Indebtedness	$5362 33

The Board of Health respectfully asks that an appropriation of twelve thousand dollars be made for its relief.

In behalf of the Board of Health,

C. B. WHITE, M. D.,
President.

REMARKS ON THE INFECTION OF YELLOW FEVER AND ITS PORTABILITY.

BY SHAKSPEARE ALLEN, M. D.

CENTREVILLE, LA., January 28, 1873.

DR. C. B. WHITE, *President Board of Health:*

SIR—At your request, I furnish a statement of some facts, that have come under my immediate obesrvation, tending to show that yellow fever can be carried from one locality to another by means of infected air.

My first experience with yellow fever was in the fall of 1853. Centreville, a small village on the Bayou Teche (having instituted no quarantine regulations) was swept by a terribly fatal epidemic. The large village of Franklin (but five miles distant) having maintained a most thorough and effective quarantine, from the first breaking out of the disease in New Orleans, had remained entirely exempt.

On the evening of the 9th of October the physicians of Centreville notified the Mayor of Franklin, that they considered the epidemic at an end, "as no fresh case had occurred during the last ten days." Intercourse between the two places was, consequently, permitted on the following day (the 10th). During the night of the 10th, word came from Centreville that six new cases had developed themselves, and the morning of the eleventh (11th) saw the town of Franklin as closely quarantined as ever. On the afternoon of the 10th, a merchant of Franklin (Mr. S———), sent a servant with a light double waggon to a store in Centreville (of which he was the half owner) to procure a certain quantity of *shoes*, *axes* and *rubber overcoats*. These were boxed up in the store at Centreville (of course confining more or less of infected air), and carried to the Franklin store late in the evening of the 10th. So far as has ever been ascertained, this was the only direct communication had between the two places during the cessation of quarantine; that is, this was the only instance in which anything capable of containing infected air was taken from Centreville to Franklin. During the forenoon of the 11th, three daughters

of Mr. S———were in their father's store, and one of them wishing shoes of a certain size, Mr. S———opened (*himself*) the box brought from Centreville the previous evening—all of *them* (*no one else*) standing near as it was opened. On the morning of the 16th following, between the hours of one and six, two of the daughters (Mrs. M———and Mrs. J———, together with Mr. S———himself, were seized with yellow fever, terminating fatally in the first and last (Mrs. M———and Mr. S———). On the 17th, the third daughter (Miss S———) was attacked, but recovered *after having black vomit. No other case occurred in Franklin that year* (1853). Again, Franklin, neglecting the enforcement of quarantine in 1854, was desolated with yellow fever, having permitted a steamboat direct from New Orleans, to land and remain at a central wharf, some of her crew being sick with the fever at the time of her arrival. During the height of the epidemic a certain lot of household goods, (blankets, quilts and woolen and cotton stuffs generally) were packed in air-tight boxes for the purpose of being transported to Texas. From some cause they were not removed that season—remaining thus boxed up until the following November (1855). The boxes remained, during the winter, in a room where a fire was kept. About the middle of November, 1855, Mrs. C———arrived in Frankin, intending to remove the above mentioned goods, together with other property to her home in Texas. She concluded to repack the articles in the larger boxes, and was engaged, during the greater part of two days, in opening the original packages and repacking them. On the night of the fifth day, from the time she commenced unpacking, she was taken with fever which terminated fatally—black vomit and suppression of urine surpervening. No other case occurred in or about Franklin that season (1855), save that of a man brought from St. Martinsville (where an epidemic existed)—the man was in a dying condition when landed—was buried the following day, and no communication could be traced between the two cases. Mrs. C———, in fact, did not arrive in Franklin until two months and more had elapsed after the St. Martinsville case. The above case was peculiarly interesting to the attending physicians, happening as it did long after severe

frosts (and even a solid freeze). They were irresistibly led to the conclusion, that the woolen and cotton goods which had been closely packed during the height of the epidemic of the year previous (1854) had retained air sufficiently infected to reproduce the disease, if inhaled by a person susceptible to it. At any rate, this was the only source of infection that could be discovered.

Again, during the year 1857 (in September) a young man made his way from New Orleans, where yellow fever was prevailing, to Pattersonville, a small village near the mouth of the Bayou Teche. A very strict quarantine was being enforced throughout the parish (St. Mary), and this young man was consequently compelled to travel in a somewhat clandestine manner. He arrived at a store in Pattersonville some time after dark (the clerk of which was an intimate friend) and requested permission to remain all night, as he was too much fatigued to continue to his home, some four miles further. Permission was readily accorded. On retiring he deposited, on the foot of the bed, a bundle tightly corded. This bundle consisted of a heavy overcoat and a thick blanket.. It had not been unrolled since he had wrapped it up in New Orleans (in a house too, not only located in the infected district, but wherein some cases of fever existed at the time). During the night the clerk (Mr. R——), feeling cold, intimated his intention of getting up "to procure more cover," when his bed-fellow remarked, "I have just the thing for us;" and reaching forward, untied the bundle and drew the blanket and overcoat over them both, under which they slept until morning.

About one week subsequently Mr. R.. the clerk, was taken with yellow fever, dying on the fifth day of his attack with black vomit and suppression of urine. *There was no other case, that season, in the parish.*

In October, 1866, Mrs. F., a young wife of but a few months, was taken ill with fever. She had been subject to somewhat frequent attacks of fever, which, although smart, had always proved ephemeral. Her physician considered this as of the same character, but she insisted, from the first, that it was a different fever from any she had ever before suffered from.

She died on the fourth night, with all the characteristic symptoms of yellow fever.

Here was a person living on a plantation, far removed from any town or village, and from which she had not been for weeks (two months). There had not been a case of yellow fever in the entire country, outside of New Orleans, and yet she, unquestionably, died with yellow fever. The husband (Mr. F.,) afterwards informed me that, about a week (five days) before his wife was attacked, Mr. P. (a very intimate friend), had arrived from New Orleans. The boarding house in which Mr. P. had lodged while in the city was situated nearly in the centre of the infected district, in the French part of the town. Three fatal cases occurred in the house itself, during his stay. His trunk remained open in his room until the morning of his departure, when he locked it. It was not again opened until *Mrs. F.* unlocked it, for the purpose of taking out some articles of dress which Mr. P. had purchased for her in New Orleans.

Again, during the summer of 1867, a most stringent quarantine was enforced by the authorities of Franklin (as well as by the other small towns situated on the bayou Teche), against all persons, boxes, bales and packages of every description, arriving from New Orleans. Outside of New Iberia (which was ravaged by a fierce epidemic, owing to an entire lack of quarantine regulations), not a case of yellow fever occurred, save a few directly in the vicinity of New Iberia, where (it was shown) they had been during the height of the epidemic—with one remarkable exception.

Mr. C., a planter residing on an isolated plantation some twelve miles from Franklin, drove to town one day during the latter part of October, 1867, and bought, among other purchases, a bale of woolen blankets. On his return home in the evening, he took with him a little nephew (seven or eight years of age), that he might spend a few days in the sugar house—it being "grinding season." He slept with his nephew, and during the first night (the weather suddenly becoming cold), he arose from bed, undid the fastenings of the bale of blankets, and threw a pair over the boy, wrapping him well up in them.

The fifth day afterwards the youngster was taken so ill that Mr. C. took him home in his carriage. The disease proved to be yellow fever, and terminated fatally. This was a most puzzling case to the physicians for more than a year. Not the slightest exposure to yellow fever infection could be traced. It was finally discovered that the bale of blankets purchased by Mr. C. had not only come direct from New Orleans to Franklin, about a week previous to Mr. C's buying them, *but had lain all summer in a store in the city, located right in the midst of the infection.* These blankets, together with other goods, had been allowed entrance to Franklin on the statement, that they had come direct from New York on a steamship, which had landed at Algiers—the goods being transferred immediately from the steamer to the Opelousas cars. On inquiry of Mr. C., subsequently, I learned that he, himself, had had yellow fever some years before, and, also, that he did not disturb the remaining portion of the blankets until late in December following; hence, the boy was the only *susceptible* person exposed to the infected air until after severe cold weather—the recipients of the blankets, also, being Creole negroes, who are not very liable to the disease at any time.

The above are a few striking individual facts that have come under my own eye. I could multiply them (as my note books contain many more), but "*cui bono?*" As to the several epidemics in which I have *participated*, the *first* cases have always been traceable to exposure to *imported infected air.* Before closing this, allow me a few *general* remarks.

You are aware, I think, that originally I entirely disbelieved in the importability of yellow fever poison. I find, of late, that *many* of my professional brethren, whose views on the subject corresponded with mine, some years ago, have experienced the same change in belief that I have. As a rule, then, I think you will find that the firmest opponents of quarantine, and strongest believers in the local origin of yellow fever (I allude to physicians), are those who have seen the least of the disease. When, however, they have been brought into immediate contact with it for a series of years, and have been so circumstanced as to have enabled them to closely observe the in-

ception and progress of different epidemics, their views as to its origin are pretty sure to change; and, finally, they are compelled (from facts their own eyes have beheld), to acknowledge that yellow fever *can* be carried, by means of confined air, from an infected place to a healthy one. Soon after my arrival in Louisiana (September, 1853), I was surprised to find that, although a large proportion of the best physicians thought the disease to be indigenous, the great mass of the *people* believed just the opposite. And here I will notice a fact, viz.: "*That quarantine laws, whenever they have been enacted in Louisiana, have been the result of persistent agitation on the part of the people; and whenever they have been repealed through the exertions of political managers, under the specious cry of economy and retrenchment), the people have, in every instance, returned, to the succeeding legislature, representatives pledged to their enactment.*

This strong and abiding faith (on the part of the people), that yellow fever is brought to New Orleans from foreign ports—had its counterpart among the people of Philadelphia nearly a century ago. I find in "Rush's Inquiries" that, special addresses were published by the most eminent physicians of Philadelphia during August, 1793, informing the people that, the fatal epidemic, then raging in their midst, was caused by exhalations from a lot of damaged coffee and putrid hides that had lain exposed on certain wharves. These addresses were published with a view "of allaying alarm, *and to show that it is not an imported disease.*" The worthy Doctor (Rush) remarks very naively (speaking of his own address)—"But this publication had no other effect, than to produce fresh clamours against the authour; for the citizens as well as most of the physicians of Philadelphia had adopted a traditional opinion that the yellow fever could exist among us, only by importation from the West Indies."

I have alluded to the above simply to show the feeling, that has ever animated the people, regarding yellow fever; as opposed to the *theories* advanced, and obstinately held, by many leading physicians. The former have ever noticed the palpable fact, that whenever communication with foreign ports has been

entirely suspended, there was a corresponding suspension of yellow fever! As for instance, during the years 1807, 1808, 1813, 1814, all commercial intercourse between New Orleans and foreign ports being prevented, on account of embargo and war, there was no yellow fever. Again, a quarantine law having been enacted in 1817, was repealed the following season because some cases of yellew fever were reported. The year 1819 proved highly epidemic—no doubt existing in the minds of the citizens that it was brought from Havana. In 1820 it was again epidemic—the first cases arising from two vessels, one direct from Havana (two of her crew having died with it on the voyage); the other from Matanzas with the disease on board. In 1821, public opinion again compelled the re-enactment of a quarantine law. And so has it continued alternating. Professional theorists and politicians vs. the strong common sense of the people.

I trust you will excuse this crude and prolix communication. It is, by no means, what I had intended sending you; but I have despaired of finding time to do *anything* which requires two, *consecutive*, hours of leisure—*free from interruption*. I wish to say that I firmly believe that, could the policy, that has been pursued by the Board for the last three years, be steadily persisted in, not many lustres would shine upon us, ere New Orleans would be as free from *epidemics* of yellow fever, as Philadelphia, Boston, or New York. I feel confident also, that more effective disinfectants will be discovered, as well as better methods of applying them. Above all, I am convinced that, in time, quarantine regulations will be so perfected that they will be effective, without being too onerous.

Very respectfully,

SHAKSPEARE ALLEN, M. D.

REPORT OF THE SANITARY INSPECTOR, FIRST DISTRICT,

JULIUS S. CLARK, M. D.

OFFICE SANITARY INSPECTOR, FIRST DISTRICT,
New Orleans, La., Dec. 31, 1872.

C. B. WHITE, M. D., *President Board of Health:*

Sir—In submitting the following report of the doings of this office, for the year ending December 31, 1872, allow me to preface the same with a tew remarks, in way of defining the powers and limitations of the laws under which we act, for the purpose of correcting erroneous impressions:

First—The jurisdiction of the Board is bounded by the banquettes—i. e., they are not responsible for the condition of the public streets, nor have they the power to require or enforce their cleanliness.

Second—They are not competent to adjudge what is, or may be, dangerous to life and limb, except it be through the direct consequence of health.

In the above they have but the power of recommendation, which is potent or otherwise, as depends upon the endowments and acquirements of a separate and sovereign authority.

The community being on familiar terms with the tithe-monger, court an acquaintance with the street-cleaner, and with temerity insist that it is the duty of some one to provide them with the conditions of health, to the extent of the removal of the conditions of disease—a *quid pro quo* philosophy, and from a retrospective view, Utopian.

Boards of Health are presumptively composed of those selected by reason of certain special qualifications of education and experience for particular duties; but if some of its most important duties are delegated to another bureau, the chief of which is selected for certain other qualifications, unless he be of versatile attainments, is incompetent for extraordinary duties.

Sanitary codes, however elaborate with scientific intelligence and comprehensive in detail, unless confided to amenable authority, are valueless.

The laws should be so amended as to give the Board, at least, supervisory powers in all matters of a sanitary character. As it is, their zeal is circumscribed by limited powers.

INSPECTIONS.

The regular annual, or house-to-house inspection made by the Sanitary Police during February, March, April, May and June, 1872, elicited the following:

	1st Ward.	2d Ward.	3d Ward.	Total.
Population	14342	16112	24789	55243
Brick houses	486	826	2149	3461
Wooden houses	2186	1797	3060	6973
Iron houses	------	------	6	6
Vacant lots	109	104	397	612
Premises not occupied (to let)	30	22	324	376
Premises not inhabited (business)	290	175	977	1442
Premises with hydrants	103	336	1307	1746
Premises with cisterns	1742	1380	2603	5725
Premises with cisterns and hydrants	631	759	821	2211
Premises with no water	87	85	167	339
Number of horses	257	282	752	1291
Number of mules	287	485	535	1307
Number of cows	70	51	72	193
Number of hogs (removed)	11	13	168	192

NOTE 1.—The number of rooms (exclusive of kitchens) in which the population are lodged, is 46,781, giving one room to 1.18 inhabitants.

NOTE 2.—There are (estimated) one thousand inhabitants beyond Broad Street Canal not accounted for in the above.

Table of Aggregate Work.

NATURE OF	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Inspections made..	122	1642	2114	2648	2356	2779	1153	3881	1222	901	508	974	21000
Reinspections made	34	49	552	373	201	209	335	....	381	148	53	129	2464
Nuisances to be abated.....	15	349	620	624	684	574	497	1076	477	323	94	186	5559
Notice to empty vaults....	13	335	470	590	511	440	301	114	49	49	9	25	2906
" rebuild vaults	..	....	85	1	50	25	17	36	....	19	...	...	233
" repair vaults..	...	....	5	....	49	28	14	15	....	3	...	...	114
" disinfect va'lts	2	2	....	2	....	6	292	840	418	210	54	37	1863
" clean premises.	...	6	16	13	16	50	33	48	10	23	10	24	249
" fill lots.....	...	....	23	....	5	2	....	5	....	...	...	...	35
" remove hogs..	...	6	3	18	14	6	7	4	....	...	4	...	54
" supply water..	...	....	5	....	20	12	2	3	....	1	...	...	43
" repair houses, etc.....	...	....	7	....	2	1	2	1	....	...	...	...	13
" rep'ir and drain alleys and lots	...	....	6	....	13	4	5	....	....	18	...	...	46
Premises disinf'ctd	...	....	1	....	....	....	....	....	43	14	...	...	58
" fumigated ..	...	....	1	7	4	....	....	....	4	3	...	...	19
Cases of small pox.	4	....	4	7	4	....	....	....	....	...	...	10	29
" yellow fever.	...	....	....	....	....	....	....	....	8	8	1	...	17
Coal oil accidents.	1	....	....	....	2	1	....	....	....	...	...	...	4
Parties reported for non-compliance..	...	15	2	....	....	10	18	10	....	...	...	...	55
Daily water guage.	...	29	31	30	31	30	31	31	30	26	21	31	321

SURFACE DRAINAGE.

There are compensating advantages to the monotonous levels of our city, inasmuch as expensive gradings and deep cuttings are not necessary; and surface drainage natural and alone practicable.

Swampy depressions are found having no natural outlet for waters, in the dryest seasons; and the only way to render such "cat-holes" innocuous, is to fill up and give the requisite slope.

Ditching fails to remedy this, as the outlet, in many instances, is equally elevated with other portions.

Sub-soil draining is equally impracticable, owing to the impervious character, the saturated condition of the soil, and the tenacious disposition of this alluvial gift of the Mississippi.

The roof surface is so extensive, that an ordinary shower of

rain shows, that artificial declination is required in the better provided localities.

Artificial means, being necessary, it can be systematized and reduced to mechanical completeness.

The Portable Railway Company have demonstrated the practicability of cheap lot filling, and inaugurated a new era for the swamp districts.

Many lots naturally low, have been further aggravated by the raising and grading of the streets and banquettes, rendering improvements of this kind questionable.

Where these ills could be remedied at reasonable expense, and especially if in a thickly settled neighborhood, it has been required. And there is no expenditure undertaken with greater willingness, as owners are fully aware that they are not only dispelling a prolific agent of malarial and epidemic diseases, but are thereby enhancing its specific value.

The inexhaustible batture deposits can be utilized for raising, grading and filling, with cheapness and to any extent.

UNPAVED STREETS.

One of the most fertile sources of pernicious and infectious exhalations arises from the soil of unpaved streets.

Originally, perhaps, the street was graded with the offal of kitchens, the sweepings of paved streets or the refuse of stables; certainly, the stupid street cleaner dips from the gutters the accummulated filth, rendered quite innocuous by its mantel of water, and *butters* the street with this, to become virulent under a perpendicular sun. Even now it is not allowed to desiccate, and become less harmful for a season; but the unpitying housewife, in pacifying the dust, supplies the remaining condition—moisture—and the festering process continues.

Lay sermons on this and kindred subjects should be disseminated through the colporterage of the press.

SUB-SOIL WATER.

Speculation is frequently directed to the connection, if any, between the altitude of the sub-soil water and the Mississippi river, in its different stages; or the former, as effected by

drainage canals, in percolation or filtration. Seven wells were selected, and observations noted, with the following results :

The rise or fall of the river had no perceptible effect upon these wells—in fact, they seemed influenced by some subtle rule of contraries—the highest altitude of the wells during the lower stages of the river, and *vice versa.*

Neither did a protracted absence of rain materially lower the wells.

At one time, the water in one well fell to a point twenty-six and one-half inches below the curb, or surface of the ground, but rarely approached that point. Water was occasionally taken from this well. Another, which was constantly covered, and from which no water was taken, fell to a point twenty-five inches from curb, but was never less than seven inches, making its extremes only eighteen inches, and this was located within seventy feet of the Melpomene draining canal.

A diagram, illustrating the above, will be found in its proper place.

REMOVAL OF GARBAGE.

The great importance of this matter is recognized by section 1, Sanitary Ordinance, and fully appreciated by householders, and few complaints are made of their failure to comply.

But to those whose duty it is to remove the same it is necessary to say, that it has been done when it suited the imperial pleasure of the Honorable Administrator of Improvements (old regime) and his adjutants.

Some streets and localities are often weeks without seeing his representatives, and when attention has been called to the fact, it was often of no avail.

VARIOLA—VARIOLOID.

While small pox has been decimating several northern cities, and prevailing in nearly all, we have enjoyed a comparative immunity.

In this district there has been but thirty cases, a majority of which were of direct immigration, and others, with few exceptions, could be traced to imported fomites.

The several cases furnished distinct foci of infection, in widely separate localities, and the most diligent research failed to associate one with another. Twenty of the above were transferred to the Anfoux Hospital for treatment, and the remaining ten, possessing a home where satisfactory sanitary regimen could be maintained, were allowed to remain, subject to our supervision.

The essential nature of small pox being to diffuse itself, our mode of procedure was as follows:

ISOLATION.

1st. Those attacked with variola or varioloid, together with their infected clothing, were immediately separated from the unprotected and from those liable to communicate it to others.

2d. Quarantine of nurses and their infected clothing.

3d. None but nurses and attending physicians allowed access.

4th. Patients were not permitted to leave premises until house, bedding and personal clothing had been disinfected.

DISINFECTION.

1st. All bedding and personal clothing was treated to boiling water.

2d. Beds, pillows and mattresses, which could not be wet without injury, were thoroughly fumigated with the fumes of sulphurous acid or chlorine gas.

3d. Drains, foul places in houses, stables and yards were disinfected with a solution of iron in water, mixed with carbolic acid.

4th. Personal and domestic cleanliness enforced.

To those of the infected house and immediate neighborhood were enforced the "ounce of preventative" practice, in a general vaccination; and thus hedged in, and without aliment, it died of metephorical inanition.

In our efforts at vaccination, we met with some opposition from our both credulous and incredulous colored friends, whose fatalistic tendencies are to special dispensation of the Deity, and whose only faith is in a direct Providential inter-

ference. In deference to "the law" they eventually assented.

The success attending our efforts thus far cannot be anticipated for the future, should there be, as promised, a greater and continuous invoice of this pestilence, as with the utmost vigilance, sooner or later, it will get a foothood and a dire harvest be gathered. A general vaccination should be effected.

Many of the teachers of the public schools are lax in their enforcement of Section 29, Sanitary Ordinance, in admitting pupils on the *ipse dixit* of parents, or without inquiry, as to immunity and protection; in fact, its enforcement, in good faith, is limited to a single school—the Franklin.

YELLOW FEVER.

There were seventeen cases of fever in this district during the year, seven of which were in the square bounded by St. Charles, St. Joseph, Carondelet and Julia. Nine of this number could be traced to a definite source of contagion: *i. e.*, to immediate exposure or from residence in an infected neighborhood.

The previous history ot 4 other cases could not be ascertained —homeless and friendless! Another was a student in the Charity Hospital. Of the three remaining, two might comfort the sporadic theorizer; the other "which might (not) have been," gives nothing tangible.

During the past year I have made it a duty to have all premises examined, whereon occurred deaths from fevers that might be dependent upon, or incidental to, local and remediable causes, and the following observations noted, at each residence, and results aggregated:

Premises were paved	23,	were not	21
Slops thrown upon the ground	15	"	33
Were gutters for house waters	28	"	17
With leaky vaults	10	"	37
Drains were connected with streets	32	"	15
Were foul waters in vicinity	26	"	20
Distance of floor above ground, average inches			17
Number of occupants to premises			9.3
" rooms "			7.3
" persons to room			1.3

Of the forty-eight premises thus examined, there were but ten, that, with a charitable verdict, would answer all requirements of a good sanitary condition, and a majority of these were probably *surrounded* by conditions unfavorable.

Further, by arbitrarily dividing this district in two parts, with Rampart street for a line, and designating that portion lying between this and the Mississippi *highland*, and that portion between the same and Broad street *swamp*, we find the population of the latter to be 21,239 or 44 per cent. This 44 per cent. has 29 of the 48, or 60 per cent. of the total deaths, in this district by fevers.

EPIZOOTIC.

Previous to, and in anticipation of, the advent of this malady, the Sanitary Police undertook a general inspection of public and private stables, to ascertain their sanitary condition and correct whatever might exist prejudicial to the health of the animals quartered there.

In the public stables we found little requiring action on our part, the proprietors being equally alert and well informed; private stables were found in a much less favorable condition.

In fact, the general attention of livery keepers to the comfort of their servants, from the dictates of humanity, quite as well as of interest, make their regard of the horse such as should put to shame the landlords of the poor—hundreds of whom are furnished with homes (?), in comparison with which, public stables are palaces. Private stables (nearly all the animals of which are worked by their owners, who are draymen, hucksters, &c.) are filthy, open to the weather and ill ventilated, and will be seen, by the annexed table, to have suffered disproportionally:

PUBLIC STABLES.

No. of horses	(in stables).....	561,	Mules,	505,	Total,	1066
" "	sick.....	561	"	505	"	1066
" "	died.....	9	"	0	"	9
Per cent. "	sick—horses.....	100	"	100		
" "	deaths "	1.6	"	0		

PRIVATE STABLES.

No. of horses (in stables).			...579.	Mules,	1,004.	Total,	1,583
"	"	sick.....	.432	"	896	"	1,328
"	"	died.....	25	"	24	"	49
Per cent. "		sick—horses...	.76	"	.89		
"	"	deaths " (sick).	5.8	"	2.8		

It will be seen that private animals, being more isolated, escaped in part from the infection; but owing to unfavorable sanitary conditions the mortality was more than five to one when compared to public animals.

IN GENERAL.

There are many reforms of a public and private character, and which are a *sine qua non* to a respectable showing in this matter of health, to be inaugurated, ere we can claim to be a healthy community.

Self evident, among these, are public cleanliness; raising, grading and paving of streets; raising, grading and draining of lots; a more general and complete water supply; elevation and dryness in construction of houses, &c.

There are two classes of wiseacres who are pernicious to the community:

First: Those who affect that we have an incomparably healthy community; that the death rate of New Orleans is below that of other large cities.

Facts will not justify this assertion, even in the absence of epidemics, and here is where the injury is done.

There is an undue amount of preventable disease, and we compromise our true interests in denying it, in this, that we compound the folly by ignoring the necessity of steps to remedy it.

There is another class, the antipodes of the former, who, at the sight of the hearse, magnify their own termerity by writing abroad of the "Carnival," confirming grandames in their belief: "That Echo there, whatever is ask'd her, answers 'Death.'"

Health and wealth are convertible problems, and equally apposite to individuals and communities.

Say nothing of the sacredness of life—forget for the nonce that one of the great requirements of the age, is to cherish the longevity of man and his consequent happiness—forget them, we say, and reduce the affair to dollars and cents, and health, with its reputation, *pays*. Will our economists comprehend ?

To those poorly paid and much abused metropolitans—sanitary officers—Wooddy, Nicoll, Brennan and Parker, this office and the public are debtors.

Respectfully submitted,

JULIUS S. CLARK, M. D.,

Sanitary Inspector, First District.

REPORT THE OF SANITARY INSPECTOR, SECOND DISTRICT.

S. S. Herrick, M. D.

Office Sanitary Inspector, Second District,
New Orleans, La., Dec. 31st, 1872.

C. B. White, M. D., *President Board of Health :*

Sir :—I have the honor to present the following report of sanitary matters in the Second District during the past year :

The lamented death of Dr. Albers, on April 11th, rendered it necessary for Dr. Clark, Sanitary Inspector of the First District, to take charge of this office also, until I was installed, August 22d. Although my term of duty has extended over but little more than a third of the year, the records left by my predecessor afford data for exhibiting substantially the whole work done.

The Second District of New Orleans comprises the fourth, fifth and sixth wards, and the three sanitary officers detailed from the Metropolitan Police for service here, are assigned to the several wards. On my accession, the following officers were on duty : L. D. Allen in the fourth ward, J. Connell in the

fifth, and L. G. Stephout in the sixth. During the month of September, Allen was superseded by A. J. Barrett. I take pleasure here in testifying my satisfaction with the zeal and fidelity evinced by all these officers in the discharge of duties which require more than ordinary discretion, tact and intelligence.

The general house-to-house inspection was commenced February 1st, and finished about July 10th. Its completion would have been reached earlier, but for the withdrawal of the sanitary officers for several weeks, while the Legislature was in session.

During the succeeding summer months, most of the premises as far back as Claiborne street were again inspected, with reference to general cleanliness, and especially to disinfection of privies, when found necessary. The agents recommended for this last purpose, were the zinc-iron disinfectant supplemented by carbolic acid, and sulphate of iron with carbolic acid dissolved in water. In addition to this work, the French Market and its environs were duly inspected; the principal boarding houses were daily visited, to gain the earliest intelligence of sickness; the police stations were daily visited, to learn whether any nuisances had been complained of; the registration of deaths was scrutinized twice daily; deaths from all fevers were reported to the Board of Health, those in this district investigated without delay, and the condition of the premises where such cases occurred was noted for future reference.

Since February 1st, daily observation of the sub-soil water has been made in a well at 258 Chartres street. Its variations are found to bear no relation to those of the river, but to be governed by local rains. Daily record has also been made of the stage of the river, as shown by the guage at the Harbor Police station. The accompanying diagram gives the result of these observations in lines drawn through horizontal spaces each day, and showing the fluctuations in vertical spaces. It also exhibits the rain-fall since June 1st.

Only three well authenticated cases of yellow fever have occurred in this district, all being young men. The first, at 179 Rampart street, sickened September 4th, and recovered. The

second, at 21 Canal street, sickened September 8th, and died September 16th. The third sickened at the corner of Canal and Front streets, about November 1st, and died at Charity Hospital November 4th. Fumigation of apartments with chlorine and sulphur, and disinfection of yards, privies and street gutters with carbolic acid, were freely used in the two first cases, and also in several others open to suspicion. The third case was not heard of till nine days after his death, and it was then thought most prudent, after close inquiry and examination of the premises where he resided, to take no further action. Only in the second of these cases could any connection be traced with either previous or subsequent ones. This one was directly traceable to infection at the corner of Rousseau and Fifth streets, in the Fourth District, and a young man associated with him before and during his illness, was soon after attacked. No epidemic tendency certainly was developed in the Second District.

Seven cases of small pox occurred previous to July 1st. There was no further appearance until October 14th, when two men on board the United States steamer "Aid," lately from St. Louis, were sent to the Small Pox Hospital. The same disposition was made of two more cases, as soon as discovered, which was on November 23d and 26th—the one a negro man from the steamer "Pargoud," the other an old white woman lately from Cincinnati.

While there is uninterrupted communication with other cities where this disease is prevailing; while cases arrive almost daily by the ordinary routes of travel; and while large numbers of our population, both children and adults, are without protection, it is apparent that energetic measures are needed to meet and repress it. Former experience has demonstrated that the offer of gratuitous vaccination in the public prints, is almost useless, and that its urgent recommendation to the parents of unprotected children, and to adults inadequately protected, who have been exposed to infection, is often declined. The fear of being sent to the small-pox hospital is generally more convincing than dread of the malady. In the absence of compulsory vaccination, we are therefore without a safeguard, and

candor obliges me to avow a disbelief that a law to such an effect could be enforced in this community.

Eighteen "coal-oil accidents" have been investigated during the year. In some instances the police had made earlier visits and carried off the material evidence of the fact; in others no specimen of the oil was left, and it was impossible to learn where it was purchased, or under what particular name. It has been satisfactorily ascertained, however, that more than two-thirds of these accidents occurred with oils really belonging to the classes known as naphtha and gasoline, but sold under such assumed names as Septoline, Anchor and Crystal oils. One individual has been fatally, and another severely burned, but the loss of property has been inconsiderable. The bursting of two oil cans and two lamps is a somewhat forcible commentary on the strenuously attested non-explosive properties of these fancy oils.

During the summer months there were frequent complaints against dealers in fish and shrimps at the French Market. The sanitary officer for the ward exercised constant vigilance to prevent accumulation of offal at the market, and to see that the drainage from the ice-houses, where they are kept out of market hours, might not become offensive. Notwithstanding all his watchfulness and the pains taken by the dealers, ground for complaint would frequently arise, especially in the drainage from the melting ice and shrimps, into the street gutters.

My opinion is, that the nuisance can not be altogether obviated under the present arrangement, but that a different location for the whole business might afford the desired relief. A suitable building for the storage and sale of fish, shrimps and crabs, could be erected on the levee, directly in front of the fish market, and drainage could easily be effected through an iron pipe into the river. The business would then be somewhat removed from the public thoroughfares, and from the shops, boarding-houses and private residences, which have been afflicted with unwholesome odors.

In anticipation of the epizootic, the inspection of stables was commenced November 22d. The primary object of this work was to advise the owners of animals how to put their

stables in good sanitary condition, and how to treat the sick animals. Another object was to learn what animals were kept by the various owners, and the condition of their stables. The most important stables were subsequently re-inspected, with the view of learning the results of the distemper, and how these were modified by surrounding circumstances. The main facts of these inquiries are here exhibited in tabular form:

Inspection of Stables, Second District, with reference to the Epizootic, commenced November 22, 1872—finished December 4.

WARDS.	No. of Stables.	NO. OF		Horses and Mules.
		Horses.	Mules.	
Fourth	112	223	160	383
Fifth	161	260	173	433
Sixth	132	149	83	232
Total	405	632	416	1048

Re-inspection of Stables, December 4th and 31st.

Stables.	Horses.	Mules.	Horses escaped.	Mules escaped.	Horses died.	Mules died.	Total died.
91	329	496	6	7	14	5	19

The earliest access of the distemper learned was November 21st; but of this there may be some doubt, as no other cases occurred until the 25th. In some instances a single animal in a stable would be attacked one day before the rest; sometimes the interval was longer; in other instances, all were attacked the same day. The symptoms are quite similar to those of epidemic influenza, and the same as have been observed elsewhere. Dropsy has not attracted notice as a sequela, and pneumonia in but a few instances. Stiffness of the legs has been noticed, and some animals have relapsed and died from being put to work too early. It is to be observed that most of the bad cases have occurred in dirty, close, badly drained stables. Such are mostly in the rear of the district, and occupied by few animals. These observations apply especially to

the dairymen, who also continued to drive their horses after most others were withdrawn.

The two stables of the City Railroad Company are in admirable condition, and out of 261 mules and horses none have died.

Of the few which escaped the distemper here, four were horses which recently had it at New York. This, in connection with the fact that no secondary attacks have occurred here, renders it probable that one attack affords immunity against future infection.

Another fact worthy of notice is, the failure of quarantine restrictions to exclude the epizootic. This was attempted with the usual rigor characteristic of Spanish officials at the port of Havana, but was completely unavailing. I am informed furthermore by the captain of a steamer sailing to Havana, that the distemper falls with almost invariable fatality on the asses there.

The severity of the distemper began to abate by December 1st, since when it has been gradually declining, but has not yet completely disappeared.

The directions given for putting stables in good sanitary condition were well received, and followed by most people. It is safe to say, that the re-inspection found them less objectionable, by far, than is their ordinary condition.

The treatment practiced has been various. A considerable proportion of owners employed veterinary surgeons or horse-doctors. In those cases little could be learned about the remedies used, as they mostly observed or affected a mystery in their proceedings. In most cases few or no active remedies were used. Rest, warm blankets, soft food and warm drinks were generally used. Frictions to the throat, with stimulating liniments, were commonly practiced. Fumigation with tar and old leather is reported in a number of instances. Laxatives of sulphur and molasses were sometimes given, and bran mashes very generally.

The prevalence of fine weather during the period of greatest severity undoubtedly has had a salutary effect; and it is certain that much has been gained from the experience of owners

in localities previously visited. On the whole, though the inconvenience suffered by the community for two or three weeks was universally felt, and the interruption to most kinds of business quite serious, the actual loss by death of animals has been trifling.

The inspection of the public school buildings was made by myself personally, between November 21st and December 31st. The accompanying tabulated form shows the sanitary condition of the premises. It appears that some of the buildings were not put in needed repair during the summer vacation, and that several are not suitable for school purposes, having been constructed for dwellings. In the existing state of our public finances no material improvement, however desirable, can be expected for the present or in the early future. It was my wish to fulfill the intent of the vaccination ordinance in the public schools, and I made some efforts to this end. The full co-operation of the teachers is necessary for this purpose, but could not be obtained. This resulted from no unwillingness on their part or depreciation of the importance of the measure; but they could not be expected to use the last resort of suspension of the pupils, in case of non-compliance, without authority from the School Board. That body has not yet taken the necessary action in the premises, and the matter consequently has been delayed.

HOUSE TO HOUSE INSPECTION.

Premises	8,971
" with hydrants	2,794
" " cisterns	3,980
" " " and hydrants	1,800
" " no water supply	397
" built of wood	4,756
" " iron	——
" " brick	4,205
" with horses, mules, cows, hogs	696
Lots vacant	649
Persons occupying premises	40,040

MISCELLANEOUS.

* Inspections made	15,839
Re-inspections	4,047
Nuisances requiring abatement	4,265
Notices to empty vaults	2,166
" rebuild "	64
" repair "	119
" disinfect "	1,704
" clean premises	122
" fill lots	12
" drain lots	15
" remove hogs	36
" supply water	15
" repair houses	5
" raise and drain alleys	7
Dangerous buildings reported	3
Premises disinfected	31
" fumigated	12
Cases of Smallpox	11
" Yellow Fever	3
Parties reported for non-compliance	20

Respectfully submitted,

S. S. HERRICK, M. D.,

Sanitary Inspector.

*Including the 8,971 premises enumerated above.

REPORT OF THE SANITARY INSPECTOR, THIRD DISTRICT.

WM. H. HIRE, M. D.

OFFICE SANITARY INSPECTOR, THIRD DISTRICT,
New Orleans, La., December 31, 1872.

C. B. WHITE, M. D., *President Board of Health:*

Sir—I have the honor to submit the Annual Report of the Sanitary condition of the Third District, and the transactions of this department for the year just ended.

The late lamented Dr. F. B. Albers, my predecessor, took a great deal of pains in performing the duties of this office, up to the time of his death, which occurred on April 11th. Dr. Albers had succeeded Dr. A. W. Perry, now Sanitary Inspector of the Fourth District.

After Dr. Albers' decease, until the 24th of August, the duties of the office were performed by the efficient Sanitary Inspector of the First District, Dr. Julius S. Clark, in addition to his other duties, since which time I have had the honor of performing the same.

The district has been blessed by being almost exempt from epidemic diseases during the year 1872.

There has occurred but one case of yellow fever in this district during the past season,—Miss Sontag, who came from Rousseau street, in the Fourth District, where the disease prevailed at that time.

Miss Sontag had been a resident of the city but about eight months, and had been living in the district but eighteen days at the time of her death.

During my term of office, there have been but two cases of small pox, or varioloid, in this district, both steamboat hands, who came sick with the disease from St. Louis. Both cases were sent to the Small Pox Hospital, the premises fumigated, yards cleansed, fences white-washed, the clothing boiled, and all unprotected persons in the neighborhood vaccinated.

There has been a marked prevalence of congestive fever in this district during the year, as well as intermittent and remittent fevers, owing, no doubt, to the swamp lands in the rear portion of the district.

The recent epizoôtic, or horse disease, first made its appearance in this district on the 26th November. On the 27th, six horses were afflicted, after which time it rapidly became general.

There have been, in all, nineteen deaths of animals from this disease.

I made a special inspection of the premises No. 773 Rampart street, belonging to Mr. Joseph Behan, and found the back part of the premises covered with water to a depth of from one to two feet; also the premises Nos. 777 and 779 Rampart street, belonging to Mr. George Silver, where a similar nuisance was found to exist, the premises not being provided with any drainage facilities whatever.

These places were made the subject of a special report to the Board of Health, by whom orders were issued, directing the lots to be filled and provided with drainage facilities.

Upon an examination of the Public Schools I found that nearly all the scholars had been vaccinated by my predecessor or by other physicians.

There have been frequent complaints that the privy vaults and earth closets at the Public Schools are very much neglected.

The following is a tabular report of the annual house to house inspection:

Total number of premises	5,706
" " with hydrants	358
" " " cisterns	4,809
" " " cisterns and hydrants	472
" " " no water supply	27
" houses built of wood	5,021
" " iron	1
" " brick	772
" animals	875
" horses	282

Total number of mules	313
" cows	133
" hogs	147
" vacant lots	454
" persons occupying premises	28,342

SANITARY WORK.

Number of inspections	10,116
" re-inspections	2,237
" nuisances found requiring abatement	2,631
" notices served to empty vaults	1,379
" " " rebuild "	11
" " " repair "	53
" " " disinfect "	627
" " " clean premises	243
" " " fill lots	7
" " " drain lots	79
" " " remove hogs	28
" " " provide water supply	3
" " " repair houses	4
" " " raise and drain alleys	3
" premises disinfected	20
" " fumigated	18
" cases of small-pox	19
" " yellow fever	1

I have the honor to be, sir,

Yours respectfully,

WM. H. HIRE, M.D.,

Sanitary Inspector.

REPORT OF THE SANITARY INSPECTOR, FOURTH DISTRICT.

ALFRED W. PERRY, M. D.

OFFICE SANITARY INSPECTOR, FOURTH DISTRICT,
New Orleans, La., December 31, 1872.

DR. C. B. WHITE, *President Board of Health :*

SIR,—The annual report of the sanitary condition of the Fourth District, and of the operations of this office for the year 1872, is respectfully submitted. The first half of the year was devoted to the general house-to-house inspection, and the months of September, October and November to the investigation and disinfection of yellow fever cases, by the sanitary police detailed for duty in this district, and under my direction.

The past year has been an exceedingly healthy one, and the mortality from zymotic diseases has been relatively small. Yellow fever appeared in September, and caused 37 cases and 23 deaths, as will be seen by the special part of the report on that subject. The death rate from all kinds of malarial fevers has been relatively very small, and I think that it can certainly be attributed to the better drainage of the Fourth District, and the fact that the line of permanent swamp has been removed back of Carrolton avenue about two miles from the center of population in this district. Thus the mortality from malarial fevers, excluding yellow fever, was, in the Fourth District, 29, at the rate of 9 deaths for every 10,000 of population, while in the whole city the rate per 10,000 was 20.9 per cent.

SUB-SOIL WATER.

A daily record of the level of the sub-soil water has been kept during the year, and is shown by a map. In this we find that the level of the sub-soil water depends entirely upon rains; that a rise takes place immediately after a rain, and that

in dry weather the water slowly and steadily falls as long as the dry weather lasts. The observations were taken in a shallow, covered well, on Washington street, between Magazine and Constance. After very heavy rains the well filled up to the surface of the ground. The lowest point reached by the surface of the sub-soil water was three feet below the ground level. The rise and fall of the water in the river does not have any influence on the sub-soil water, as is generally supposed.

COAL OIL ACCIDENTS

Have not been so frequent as last year. I have ascertained the particulars of nine accidents, which caused four deaths, and some severe injuries. All of these accidents were caused either by naphtha, sold under the title of some non-explosive oil, or by a heavier oil containing naphtha—all of the specimens would class as dangerous, according to the laws on the subject in force in many of the States.

SMALL POX.

The first case in this district this year was a case of varioloid, reported July 15th, on Washington street. This was promptly sent to the Small Pox Hospital, and the premises disinfected by fumigation. No other cases resulted from this case. The next case was reported about the middle of December, on Eighth street, and was a case of varioloid. This was isolated at the house of the patient. It was contracted at St. Louis. A third case was reported December 28th, on Second street, near St. Dennis.

The yellow fever which visited our city during the past year commenced, as in the previous year, in one of the most healthy and cleanly portions of the Fourth District, which is the best part of the city. The first case occurred August 28th, in the person of Frank Henning, a native of Sweden, aged 36 years; two years in the city, a druggist by occupation, and employed in a drug store corner of Washington and Rousseau streets, where he was taken sick. He was sick in the drug store two days, then went to a house on Livaudais street, about 100 yards distant, where he remained two days, and was then sent

to the Hotel Dieu, where he died, September 1st. Although the most careful inquiry was made, no history could be traced of the disease having been imported. This case may be considered the starting point of the yellow fever of this year, for from this case six (6) persons, who had direct and recent communication, were attacked with yellow fever. The first of these secondary cases was a young man who waited on Henning. Another was a young lady, whom this last young man visited immediately after recovering from the yellow fever. Two others were fellow clerks in the same store with Henning, the first case. In one other case the man attacked, frequently visited Henning in the drug store, and soon after was taken sick with the fever, and his wife also. The disease continued to increase slowly, in a few limited areas in this district, until October 13th, when it reached its highest point. The following table shows the gradual rise and decline during October:

October 1st	1	case
" 2d	3	"
" 5th	2	"
" 7th	1	"
" 8th	2	"
" 9th	1	"
" 10th	2	"
" 11th	1	"
" 12th	3	"
" 13th	7	"
" 14th	1	"
" 15th	1	"
" 18th	4	"
" 19th	2	"
" 20th	1	"
" 21st	2	"

A case occurred on Rousseau, between Jackson and Philip, which gave origin to seven others, and a group of thirteen cases occurred within 150 yards of the corner of Jackson and Magazine. There occurred ten cases in September, thirty-seven in October, ten in November, making a total of fifty-

seven in the Fourth District. The fever has shown the same tendency as last year, to confine itself to small localities, and it has also shown itself to be exceedingly communicable. The frequent communication of yellow fever this year is probably not a new feature in the disease, but is shown strongly this season, because all cases were promptly reported, and the details of the cases were kept. Out of the fifty-seven cases originating in this district, in twenty-seven there was recent and direct communication.

All of the houses where the disease occurred were disinfected with carbolic acid, in the following manner:

When the case was reported, a few gallons of crude carbolic acid were sprinkled, with a watering pot, around the house, in the yard and adjacent street. The object of this was to cause an impregnation of the air of the locality with carbolic acid vapor. On the termination of the case, either in recovery or death, the rooms in which the patient had been, were disinfected, by throwing a fine spray of *pure* carbolic acid diluted with fifty parts of water, into every part of the rooms, upon the walls, ceiling, furniture. In the form of a fine spray, a minute portion of carbolic acid was thus brought in contact with everything in the room, and every organic germ must have been destroyed. All bedding and clothing which had been used, was either boiled or soaked in diluted pure carbolic acid. I found, by direct experiment, that pure carbolic acid dissolves readily in fifty parts of water, forming a clear solution, which does not stain or injure the most delicate colors of calico, silk or broadcloth, and yet is strong enough to destroy the vitality of all the lower forms of life. The use of any well directed system of disinfection in a disease necessarily involves a theory of the nature, production and communication of the disease. Our system of disinfection is based on the propositions,

1st. That yellow fever is produced by an organic living germ.

2d. That it is portable in ships, cars, clothing, etc.

3d. That it is solid and not readily diffused through the air, but sticks to solid bodies.

One attack of yellow fever is usually a protection against

another. The apparent exceptions to this protecting influence of a first attack, are more frequent than in small-pox, but most of these exceptions must vanish, when it is remembered that in mild yellow fever there is no pathognomonic sign, like the eruption in the exanthemata, and a *certain* distinctive diagnosis cannot be made from malarial fevers. The real exceptions are not more numerous than in small-pox. That yellow fever is portable is generally admitted, and too many instances are on record in all medical works, where vessels have arrived in seaports of the United States and Europe, with cases of yellow fever on board, and large numbers of persons who visited these vessels have been attacked with yellow fever, to require any extended proofs here. A vessel loaded with sugar arrived from Cuba at St. Nazaire, France. In July, 1861, four cases of yellow fever had occurred on the voyage, the last case was well 13 days before the vessel arrived in St. Nazaire; within a few days after her arrival, well marked yellow fever attacked the men who visited the vessel, those who were engaged in unloading her, some of the crews of vessels lying near, and some persons living in the town who had no direct communication with the vessel were attacked. In all there were 44 cases and 26 deaths.

If we admit that yellow fever depends on a living germ, it is theoretically possible to control the spread of yellow fever by destroying the life of these germs. The difficulty is to find them exactly. We find by experience, that the winter here either destroys these germs or suspends their vitality. The probability is that most of them are destroyed, and only a few are left, and that when the yellow fever occurs here without importation, that it is caused by these germs, which have remained over from last year. This is rendered probable from the circumstances that yellow fever only makes its appearance here after hot weather has lasted two or three months. It is likely that the yellow fever germs whose vitality was only suspended, revive when the hot weather commences, and that they require this interval before they have multiplied sufficiently to make themselves felt, by causing the disease. The less number of germs that are left alive, the longer time will be required

to produce the requisite quantity. Every germ that can be destroyed in the first, or first few generations is equivalent to destroying millions in the later generations. If this were not so, and all the germs which are left at the end of the fall, scattered around the city, were to revive the next year in the first warm, damp weather, it would attain its full development suddenly, instead of gradually spreading from one or more points, and requiring months for its full development. In the frost zone, as I may call it, if any hyigenic measures will delay the developement of the disease. until the cold weather, it is practically almost as good as totally destroying the disease. A disease germ cannot originate anew, it must be the descendant of some parent germ, and it is simply ridiculous for us to run to spontaneous generation whenever we meet a living individual whose parents are not apparent. There is no experimental evidence of the new creation of any living thing, from the lowest plant to the highest organized animal; and there is an immense weight of evidence against it. In any house where one or more persons have been taken with yellow fever, there are certainly some fever germs present on the premises. By sprinkling carbolic acid on the ground in the vicinity, we destroy some diseased germs; the vapor of the acid diffusing in the air kills others. In disinfecting a room we use an apparatus to throw a solution of carbolic acid in the form of a spray, which is so fine that it diffuses itself in every direction, in every crevice and fold, and yet each particle is a liquid, and as such has a stronger and more certain effect in destroying vitality; for it is well known that the liquid condition is absolutely neccessary for the chemical actions of substances on each other. The apparatus used to produce this spray is composed of a copper vessel, holding two gallons of water, which is placed on a small sheet iron furnace, and in which steam is generated to the pressure of four to five pounds to the inch; connected to this is a quarter inch rubber tube, eight feet long, through which the steam is conveyed to a brass nozzle, with an opening one-sixteenth inch in diameter. The carbolic acid solution is supplied to the steam nozzle, so that it flows slowly over the jet of steam, which breaks the liquid up into the finest

spray. The steam kettle is placed in the middle of an appartment, and the steam nozzle and reservoir of carbolic acid solution is carried around the room and the resultant carbolic acid spray directed upon every thing which is required to be disinfected.

In the history of yellow fever this year, it will be observed that it required more than six weeks from the first case, August 28th, for it to reach its climax, October 13th; seven cases being attacked that day, thence it declined rapidly to only one case in the second week in November. The decrease of the fever above shown, can only have resulted from two causes, which have not been in operation in some previous years.

The disinfection with carbolic acid, certainly destroyed a large number of disease germs, and the growing and very prevalent belief in the communicability of the fever, has caused many families to send off the well members as soon as any one was taken sick with the fever, and has also cut off a large proportion of the intercourse with the infected. From August 28th to November 15th, there was no change in the temperature or barometric pressure, which could account for the diminution of the disease. The mean daily temperature varied only 6.3 deg. F., and the barometric pressure ~~1.15~~ of an inch. On November 15th, the weather suddenly changed to very cold, the temperature falling to 33 deg. F.

The large proportion of cases in which the disease has been shown to have been communicated, shows the disease had a strong tendency to spread. The yellow fever reached its highest point, October 13th, and the cold weather first came one month afterwards, and then the fever had almost disappeared.

GENERAL HOUSE-TO-HOUSE INSPECTION.

The general inspection of premises was commenced in April, and finished in July. The work was done principally by the two permanent sanitary police officers, detailed in this district, and in the Sixth District.

The tabular statement given below contains all the opera-

tions of the sanitary police, done under my direction during the year, and the result of the above-mentioned inspection:

Number of premises	6625
" " with cisterns	6618
" " with no water supply	9
" " built of wood	6089
" " " brick	536
" lots vacant	416
" persons occupying premises	32766
" rooms	21831

MISCELLANEOUS.

Number of inspections made	8677
" re-inspection	2174
" nuisances requiring abatement	2064
" notices to empty vaults	1482
" " rebuild vaults	130
" " repair vaults	79
" " disinfect vaults	194
" " clean premises	67
" " clean stables	6
" " fill lots	23
" " drain lots	44
" " remove hogs	27
" " drain stables	2
" dangerous buildings reported	7
" premises disinfected	42
" " fumigated	1
" cases of small-pox	34
" " yellow fever	57
" parties reported for non-compliance	27

ALFRED W. PERRY, M. D.,

Sanitary Inspector, Fourth District.

REPORT OF THE SANITARY INSPECTOR, FIFTH DISTRICT.

JULES A. MATHIEU, M. D.

OFFICE SANITARY INSPECTOR, FIFTH DISTRICT,
New Orleans, December 31st, 1872.

C. B. WHITE, M. D., *President Board of Health:*

SIR:—I have the honor to submit the following annual report of the operations of this office, and the sanitary condition of the Fifth District, for the year ending December 31st, 1872:

Besides the accompanying table, showing the sanitary work done in this Fifth District during the year ending December 31st, 1872, I would submit, also, the following results, extracted from the "Annual General Inspection."

Water capacity of cisterns (in gallons)	2,200,060
Average capacity to each room (in gallons)	550
Number of inhabitants to each house	2.6
" inhabitants to each room	1.5
" rooms in each house	3.0
" dairies	15.
" cows	330.

The apparent discrepancy between the "notices served" and the number of "nuisances found," is explained by the fact that, in several instances only *one* notice served to cause the abatement of *several* nuisances, when the same existed on more than one premises owned by the same person (or represented by only one agent).

All the violations of the sanitary ordinances (including the six cases of non-compliance therein reported), have ultimately been abated.

In the only two cases of small pox which took place in this district (Algiers), the patients were at once removed to the Small Pox Hospital, the premises were fumi-

gated and disinfected, and the inmates vaccinated, which sanitary measures proved subsequently to have been entirely satisfactory as preventive of any spread of the disease.

Although the one case of yellow fever, and the one case of cholera reported were *very doubtful*, yet the usual sanitary measures were carried out in both cases.

The *horse disease*, which has existed among horses and mules, made its appearance in the Fifth District, on the 24th day of November. Up to the 2d day of December only seven cases had taken place (seven mules in private stables, at Algiers), but by the 25th day of December about one hundred horses and about fifty mules had had the disease. Two deaths only (of horses have occurred, and they took place in private stables.

Although coal and other oils, in the absence of gas, have to be exclusively resorted to in this district for illuminating purposes, yet only two accidents have occurred (one in Algiers and one in Gretna), and in both cases the cause was most evident carelessness, and the consequences not serious.

I have already stated the full particulars of all the foregoing cases in my *Special Reports*, at the respective time of their occurrence.

The private markets in Algiers and Gretna are generally kept in good order, and this is particularly the case with the public market in Algiers.

The accompanying table of *oscillations* of the sub-soil water during the year, shows the result of the record kept in this office of daily observations made to that effect, in two wells selected in Algiers.

I have had the services of but one man of the Metropolitan Sanitary Police for this whole Fifth District, which is thirty miles long, and to him, officer Henry H. Bancroft, great credit is due for his judicious activity.

In regard to the months of January and February, as to which no statement is made, I will state that, the police officer of the district was then at the Mechanics' Institute, on account of political troubles there existing, that his death (by disease), occurred in the latter part of Februrary, that I only took

charge of said district from the 8th day of March, and that no report whatever existed at the office of the Board of Health connected with the two said months and this district.

Tables of sanitary work done in the Fifth District during the year ending December 31st, 1872:

HOUSE-TO-HOUSE INSPECTION.

Number of premises	2,087
" " with cistern	1,224
" " " no water supply	18
" houses built of wood	1,241
" " brick	25
" animals on premises	472
" vacant lots	795
" persons occupying premises	5,792

GENERAL SANITARY WORK.

Number of inspection made	3,795
" re-inspections	801
" nuisances found requring abatement	109
" notices served to empty vaults	126
" " rebuild "	3
" " disinfect "	44
" " clean premises	12
" " fill and drain lots	14
" " remove hogs	2
" " provide water supply	17
" " repair houses	3
" premises disinfected	4
" " fumigated	5
" cases of small-pox	2
" " yellow fever	1
" " cholera	1
" persons reported for non-compliance	6

Very respectfully,

JULES A. MATHIEU, M. D.

Sanitary Inspector Fifth District.

REPORT OF THE SANITARY INSPECTOR, SIXTH DISTRICT,

ALFRED W. PERRY, M. D.

OFFICE SANITARY INSPECTOR, SIXTH DISTRICT,
New Orleans, La., December 31, 1872.

C. B. WHITE, M. D., *President Board of Health:*

SIR—I have the honor to make the following report of the sanitary condition of the Sixth District, for the year 1872, and of the operations of this department:

The general house-to-house inspection was commenced in February, and was continued until July. In this period all of the streets which are much built upon were inspected. In July, the sanitary police officer on duty was transferred to the Fourth District, to finish the house-to-house inspection in that district, and during the months of August, September, October and November was on duty in the Fourth District, disinfecting houses where yellow fever had occurred.

In the Sixth District there was but one case of yellow fever, which occurred in the latter part of July, on Octavia street, about four squares north of St. Charles. No connection can be traced between this and any previous or subsequent case.

Four cases of small-pox have been reported in this district during the year—one on Berlin street, near Laurel; one on Cadiz street, near Chestnut; one on Carondelet street, near Delachaise. All these cases were either isolated in their own houses, or sent to the Small-pox Hospital, and no other cases have arisen from them. The last two cases this year was reported in the latter part of December—one on Tchoupitoulas street, near Vallence, and the others on Magazine, near Vallence.

The following is a tabular report of the annual or house-to-house inspection:

Number of premises inspected	1,826
" " with cisterns	1,821
" " " no water supply	5
" houses built of wood	1,824
" " brick	2
" animals	202
" persons occupying premises	7,892

Table of Sanitary Work performed during the Year.

Number of inspections made	1,979
" re-inspection "	359
" nuisances found requiring abatement	241
" notices served to empty vaults	149
" " rebuild vaults	13
" " repair vaults	2
" " disinfect vaults	20
" " clean premises	46
" " fill lots	1
" " drain lots	4
" " remove hogs	8
" " raise and drain alleys	1
" premises disinfected	6
" " fumigated	6
" cases of small-pox	5
" " yellow fever	1

Very respectfully,

ALFRED W. PERRY, M. D.,

Sanitary Inspector.

REPORT OF CHEMIST.

ALFRED W. PERRY, M. D.

OFFICE OF CHEMIST,
New Orleans, La., Dec. 31st, 1872.

Having been assigned to the duty of making any scientific investigations which might be required for the use of the Board of Health, I herewith present my report of the work done in the laboratory of the Board of Health, for the year 1872.

J. R. TERRY'S ZINC-IRON DISINFECTANT.

This consists of a clear green liquid, containing a small sediment of peroxide of iron, with about twenty per cent. of its bulk of crude carbolic acid, floating at its surface.

The green liquid contains fourteen per cent. by weight of copperas, or proto sulphate of iron, with a trace of sulphate of zinc. One gallon of this fluid would contain about one and one-seventh pounds of copperas; it therefore has less than one-twentieth of the disinfecting power of the zinc-iron solution, prepared according to the formula published by the Board of Health.

EFFECT OF CARBOLIC ACID VAPOR ON SUGAR.

In view of the possible use of carbolic acid in disinfecting vessels arriving at the port of New Orleans from places infected with yellow fever, I have made, at your suggestion, some experiments, to see if sugar exposed to an atmosphere charged with carbolic acid would absorb enough to damage it. A loose wooden box containing a few pounds of yellow sugar was exposed five days, in a close, small room, in which several shallow vessels containing crude carbolic acid were placed, as a result of which the air was very strongly impregnated with the vapor of the acid. A part of the sugar was taken out every day, and compared with some of the same sugar which

had not been exposed to the vapors of the acid. No difference in smell, taste or color could be distinguished. From this result I am satisfied that carbolic acid vapor may be used in disinfecting a sugar-laden vessel (as those arriving from Cuba usually are), in sufficient quantity to destroy any disease germ, and yet do no damage to the cargo.

De Wesserly's Solution of Chloride of Iron.

This liquid has a high specific gravity, 1.42, corresponding to 43 deg. Baumé. It contains in 1 litre or 1000 grammes by measure, 322 grammes of chloride of zinc, 230 grammes of proto-chloride of iron. The chloride of zinc is a very valuable disinfectant for destroying sulphuret of ammonia and other compounds, which are injurious to health. The reason why it has not been used more is, that when prepared directly, it is more expensive than the per-chloride of iron. It is far more efficient as a disinfectant than any of the salts of iron; and now, that by reason of being a waste product in certain manufacturing processes, it can compete in price with the per-chloride of iron, it deserves the preference for use in privies, gutters, drains, etc. The iron which this liquid contains is entirely in the state of proto-chloride, and acts just as copperas does, only on sulphur when in an alkaline combination; it has no action on free sulphuretted hydrogen. The chloride of zinc does not act on sulphuretted hydrogen. At a price of fifty to seventy-five cents per gallon, it is the cheapest disinfectant that can be used; but it does not act on free sulphuretted hydrogen, as I found by actual experiment. In order to secure its action on this gas, I recommended that the proto-chloride of iron should be converted into per-chloride of iron, which is cheaply done by heating the liquid with nitrate of soda and muriatic acid. This is officially recommended by the Board of Health as "Zinc Iron disinfectant."

Bromo-Chloralum.

A specimen of bromo-chloralum, given to me by the agent for examination, was found to consist almost entirely of a strong solution of chloride of aluminium, with small quantities

of chloride of calcium, magnesium, sodium and iron, which were probably accidental impurities; it also contained 30 grains of bromine per pint, combined with sodium; it contained no free bromine. In some experiments which I made with bromo-chloralum, to determine its practical effect in deodorizing the offensive sulphur compounds, I added fifty per cent. of bromo-chloralum to 1 oz. of sulphuret of ammonium; in neither case was the odor destroyed, while half of one per cent. of a saturated solution of sesqui-oxide of iron in muriatic acid, completely and immediately destroyed the ordor of the sulphuretted hydrogen water, and seven per cent. of the iron solution destroyed the odor of the sulphide of ammonium. From this it will be seen that this preparation of bromo-chloralum has no practical value in destroying the offensive products of animal and vegetable decomposition, which are principally sulphur compounds. It will undoubtedly prevent decomposition in animal fluids, and as such, is valuable as a dressing for foul ulcers, wounds, sores, etc.

Egyptian Disinfectant Powder.

Tenny's disfectant powder, presented to the Board of Health for examination, was examined, and found to consist of dried powdered clay, mixed with 2½ per cent. of carbolic acid, and 7-10 of one per cent. of sesqui-oxide of iron. One hundred pounds of this powder, would contain two and a half pounds of carbolic acid, worth not more than twenty-five cents, and the oxide of iron almost nothing. This powder has very little practical effect as a disinfectant. I found that a solution of sulphide of ammonium, was not deodorized by less than *five* times *its weight* of this disinfecting powder. In making this disinfecting powder the iron is added as sulphate of iron, but lime is also mixed with the powder, which changes the sulphate of iron into the valueless oxide of iron.

The Cause and Amount of Impurities in the Air of Large Cities.

The system of removing offal and all organic refuse from this city is so manifestly imperfect, and the injurious effect on the

public health of so much decomposing animal and vegetable matter is so obvious, that perhaps some excuse is needed for bringing forward any proofs of it. In the series of investigations which I have made, the object has been to fix definitely the extent of the injurious effects (chiefly air and water pollution) of non-removal of offal from the midst of our city. From three-fourths of the houses in the city, the solid offal is removed pretty regularly by the offal carts. The offal from the other fourth is thrown into the streets and gutters. All the liquid and semi-liquid refuse, slops, etc., are allowed to run into the gutters, in seven-eighths of which they remain. It is only in those streets of the Second, and some of the First District which are perpendicular to the river, that there exists a sufficiently strong flow of water to carry off the liquid offal which is thrown into them. This organic matter remains in the gutters until scraped out, and spread on the street; the first rain washes it back into the gutters again, and thus it is constantly decomposing and giving off unwholesome vapors. The quality and amount of the putrifiable substances which exist in the semi-fluid mud of some of the stagnant gutters of our city, are shown by the following analyses. The amount of decomposing substances found is, in the aggregate, truly appalling to persons who value health and comfort. A sample of mud, weighing 1000 grains, was evaporated to dryness and found to contain 24 per cent. of solid matter. During the evaporation there was evolved fifteen one-hundredths of a grain of ammonia, which had been produced by the previous decomposition of seventy-six one-hundredths grains of animal matter, and which had not yet escaped into the air. A small quantity of the dry residue was ignited in a combustion tube with soda-lime, and produced 88-100 of 1 per cent. of ammonia, which showed the presence of four and one-half per cent. of animal matter. Another small weighed quantity of the dry residue was ignited in a platinum crucible, and showed by the loss that it contained 29.5 per cent. of vegetable matter. A gutter the length of one square, say 300 feet, 3 inches deep and 15 inches wide, contains about six thousand pounds of semi-fluid mud, of which twenty-three per cent. dry residue makes 1400 pounds of solid matter.

This, by the figures of the above analysis, contains 63 pounds of animal matter and 420 pounds of vegetable matter. Four different samples of foul mud were examined, with the following results :

No.	Dry residue weight per cent.	Per cent. of animal matter.	Per cent. of vegetable matter.	Amount contained in the two gutters along one block.	
				Animal matter pounds.	Vegetable matter pounds
1	23	4.5	29.5	126	412
2	23	3.8	30.2	106.4	422
3	23	1.81	26.20	59.6	366
4	23	1.38	26.60	38.6	372

All this vegetable and animal matter when exposed to summer heat and moisture, is almost entirely resolved by decay into gaseous or volatile substances which escape into the air, and are constantly being inhaled into our lungs.

The soluble portions of this organic matter are to some extent washed into the ground by the rains, and this gives rise to a pollution of the *sub-soil water*. The extent of this is shown by the subjoined table of analyses of shallow well waters, which were made in May and June.

Analysis of Water from Shallow, Unused Wells—Sub-soil Water in Milligrammes per Litre, or parts per 1,000,000.

	Ammonia.	Nitric Acid.	Chlorine.	Dry Residue.
No. 1 well, corner of Love and Marigny, three feet from brink of privy vault	604	456	331	....
179 Enghein, six feet from brink of privy vault	69	90	120	....
Corner of Washington and Magazine, fifty feet from wooden privy	2	20	...	....
139 Josephine street, ten feet from wooden privy	64	154	375	....
Berlin and Camp, twenty feet from privy vault	5	5	90	720
Annunciation, near Camp, twelve feet from wooden privy	46	19	389	....
Corner St. Mary and Rousseau, twelve feet from wooden privy	28	9	84	800
59 Rousseau, eighteen feet from leaking privy	1	18	208	1200

In the water of these wells, which was only used for washing, from their proximity to the privies, I expected to find large amounts either of ammonia or nitric acid, in the form of nitrates of lime and ammonia, but these examinations show that the clay subsoil of this city is sufficiently impervious to water, to prevent the sub-soil water generally from being highly contaminated by local matter, or the products of its decomposition. This subject of contamination of sub-soil water has received a great deal of attention in Europe, and is believed to inflence to a large extent, epidemic disease. The pollution of the soil by animal matter, and the consequent pollution of well water, is not of the same importance here as in the cities of the north, and of Europe, where well water is drunk to a large extent, and where many severe outbreaks of cholera have been traced to the use of water thus polluted.

The gaseous or easily diffused products ot decomposition, which are by far the most hurtful, escape into the air. These substances are for the most part, when breathed in large proportions, fatal to life, and in small proportions, diminish the bodily vigor of persons who are well, and aggravate and prolong diseases which already exist. The respiration of air charged with these impurities, lowers the general tone of the system, and thus is a permanent predisposing cause of disease. The air where these stagnant ditches exist, contains a perceptibly larger amount of these substances than pure air. We can choose what kind of water we shall drink, or we can easily recognize dangerous impurities, and remove them, but we cannot do so with air—all must breathe its impurities, and to a great extent, we are not sensible of it.

The following tables show the analysis of very pure and impure air from this city, which I made during August and September, and also the analysis of pure and impure air in London, taken from Prof. Angus Smith's work, "Air and Rain:"

Examination of Air for Ammonia and Albuminoid Ammonia.

PLACE WHERE THE AIR WAS COLLECTED.	DATE.	HOUR.	CONDITIONS.	Ammonia per 1,000,000 cubic metres air. Grammes.	Albuminoid Ammonia per 1,000,000 cubic metres air.—Grammes.
Yard of 159 Canal st., 6 ft. from privy	Aug. 13	10 a. m.	Air still; yard small	240.	320.
Cor. Canal and Broad sts., lee side of the Canal	.. 14	9 ..	Wind north; air offensive	190.	360.
Bayou Bridge, north side of Bayou	.. 17	9 ..	Wind north; no smell perceptible	53.	105.
South side Canal and Galvez streets	.. 17	9 ..	Wind east; fresh	100.	140.
Jefferson City Hall, wind. of 2d story (in a large open area)	.. 20	10 ..	Wind NW.; blow'g in window	30.	100.
Jefferson City Hall, open window	.. 21	10 ..	Wind northeast	60.	125.
Cor. of Perdido and Liberty sts., on gallery 10 feet from ground	.. 23	10 ..	Wind north, light; gut'r very filthy; air offensive	115.2	311.
Wharf on river at foot of Adele street	.. 27	7 ..	Wind SE; ight	90.	125.
Dryades st., bet. Lafayette and Poydras sts., on gallery, 13 ft. fr. ground	.. 26	10 ..	Wind SW; gutters unusually clean for this street	60.	130.
Lake Pontchartrain, end of steamboat pier	.. 29	10 ..	Wind east; fresh off the Lake	35.	75.
231 Chartres st., yard of crow'd tenem't house	.. 31	10 ..	Wind NE; smell slight	100.	140.
Derbigny st., bet. Bienville and Conti	Sept. 2	9 ..	W'd NE; sm'l off've; gut'r very filthy	130.	206.
Derbigny st., bet. Conti and St. Louis	.. 4	3 p. m.	W'd NE; same sm'l; gutters filthy	120.	180.
Roman st., bet. Bienville and Conti	.. 5	1 ..	W'd NE; same sm'l; gutters filthy	202.	140.
Villere st., bet. Bienville and Conti	.. 7	10 a. m.	Wind light; slight smell; gut'r filthy	130.	110.
Franklin st., bet. Bienville and Conti	.. 9	11 ..	Wind light; slight sm'l; gut'r filthy	110.	100.

Analysis of London Air, from Angus Smith's work on "Air and Rain."

Date and weather.	Air obtained from	Ammonia grains per million cubic feet.	Albuminoid Ammonia grammes per million cubic meters.
1869.			
Nov. 4, windy....	Chelsea, three places.....	45.630	110.300
Nov. 5, morn. fine	Hyde Park, two places.....	29.810	86.890
Nov. 8, showery.	Islington, Hoxton, Dalston, Hackney.....	61.108	149.371
Nov. 9, dull.....	Berthual Green and Stepney.....	95.057	190.114
Nov. 9, dull.....	The Bank of England.....	66.540	142.585
Nov. 10, fine...	Back street near Lambeth Work House...	203.003	241.670
Nov. 10, fine.....	New Kent Road, Pleasant Place, Kensington Park.....	57.027	145.735
Nov. 13, very strong wind....	A field two miles past Clapham Junction..	67.772	271.088

That it may be said, "what difference can it make to the health of human beings, if there be such a small quantity of putrifying or putrifiable animal matter present as 100 or 200 grammes in so large a quantity of air as a million cubic metres," but when we consider the large amount of air that passes through our lungs in a day, we find that this putrid organic matter becomes large enough to be very sensible. A vigorous man breathes about eight cubic metres of air per day, which would contain 1.6 milligrammes alluminoid ammonia (if at the proportion of 200 grammes per million cubic metres of air.) 1.6 milligrammes is absolutely a very small quantity, yet it is found by experience in London that a drinking water containing more than 1.10 of a milligramme of albuminoid ammonia per litre is decidedly unhealthy, and when it contains 5-10 milligramme it is foul and stinking, and yet an adult drinking 1½ litres per day (the average), would only take into his system at this last high rate 1.75 milligrammes of albuminoid ammonia, so we see that 200 or even 100 grammes of albuminoid ammonia is a high and alarming rate of air impurity.

The method which I have used in these determinations of the impurities of air, is that used by R. Angus Smith, of Manchester, and the ammonia method of Wanklyn and Chapman, of London. I took a glass-stopped jar holding 2½ litres (about three quarts), and containing about 100 centimeters of water, absolutely free from ammonia; the bottle was taken to any locality, the air of which was to be examined, opened and filled with fresh air, by a bellows, and shaken a few minutes. This filling with fresh air and shaking with the pure water was repeated from twenty to one hundred times, according to the amount of impurity contained in the air. In this manner the small quantity of water in the bottle was made to absorb the ammonia and animal matter in the air used. The water was put into a glass retort, with more pure water, connected with a glass condenser, and distilled with one gramme of carbonate of soda; the ammonia was collected and estimated in the condensed water. To the residue in the retort a solution of caustic potass and permanganate of potass were added, and 200 centimeters of water distilled over; this contained the ammonia which was produced from the undecomposed animal matter existing in the water used for washing the air. The quantity of ammonia in the distillates was estimated by adding to them one cubic centimeter of Nesslers Test (a solution of iodide of mercury in iodide of potassium and caustic potass). This produced a yellow or orange color of a certain intensity, and was compared with the color produced in another vessel to which was added a *known* quantity of ammonia. We add the ammonia until the tints correspond; it requires some practice to find the corresponding tint quickly.

I have found that the difference between 10-100 and 9-100 of a milligramme of ammonia in 100 cubic centimeters of water can be readily seen. The preparation of distilled water for making the solution for comparison should be free from ammonia, and is more troublesome than any other part of the analysis. I found it best to take two gallons or more of river water, and add to it a little caustic potass and permanganate of potass and distill, rejecting the first gallon; the water that then comes over contains less than 1-200 milligrammes of

ammonia in 100 cubic centimeters of water, and is pure enough, but should give no color with the Nessler Test. The Nessler re-agent is prepared as follows:

Fifty grammes of iodide of potassium are dissolved in 100 cubic centimeters of hot water; to this is added, while hot, a strong solution of bichloride of mercury, until the precipitate, which forms, no longer dissolves on agitation; the solution is then filtered, and 150 grammes solid caustic soda or 200 grammes of caustic potass, dissolved in about 300 cubic centimeters of water, is added to the first solution; pure water is added until the bulk of the liquid is one litre; five cubic centimeters of a cold solution of bichloride of mercury are added and the liquid allowed to subside; the clear liquid is decanted and forms the Nessler test. When one cubic centimeter of the Nessler test is added to 50 cubic centimeters of distilled water containing the smallest quantity of ammonia, a yellow or brown color, or a brown precipitate is produced; the delicacy is such that 1-100 of a milligramme of ammonia in a litre can be recognized easily. The water which is examined for ammonia should contain not more than 21-100 of a milligramme of ammonia in 50 cubic centimeters, and if it contains more, should be diluted. The solution of ammonia used as a standard of comparison should contain 1-100 of a milligramme of ammonia in one cubic centimeter of water.

Respectfully,

ALFRED W. PERRY, M. D.,

Chemist to Board of Health.

METEOROLOGICAL REPORT.

ISAAC STATHEM.

OFFICE OF THE BOARD OF HEALTH,
New Orleans, December 31, 1872.

To the Board of Health :

GENTLEMEN—Since the first of July, 1872, I have made and recorded tri-daily meteorological observations, under the general supervision of Dr. C. B. White, President of the Board.

The hours selected for observations were those adopted by the Smithsonian Institution, viz: 7 o'clock A. M., 2 o'clock P. M., and 9 o'clock P. M.; and were chosen with reference to convenience for observations, and a proper division of the twenty-four hours.

The instruments used were the barometer, hygrometer, ordinary, maximum, minimum, and radiation thermometers, and rain gauge.

The barometer and thermometers were made by Messrs. R. & J. Beck, of London.

The thermometers, before being used, were carefully compared with other standard thermometers in possession of the Board.

Observations have been made of the amount, kind, direction and velocity of the clouds—the Smithsonian scale—0 to 10 being used to estimate their amount and velocity, and observations also of the direction and force of the wind.

The scale used to estimate the force of the wind is 1 to 10, and in the monthly tables of observations recorded, which follow, I have indicated observations when there was no wind, thus, 0.

THE BAROMETER.

The barometer used is a self-registering Aneroid, placed at an elevation (estimated) of thirty-five feet above sea level.

This barometer possesses a superiority over the ordinary mercurial barometer, from the fact that by a mechanical attachment, the barometric indications are registered every hour, with no more trouble to the observer than to adjust the apparatus every eight days, and from the fact that no correction for temperature is required. As is well known, however, the Aneroid barometer should be frequently compared with a standard mercurial barometer, and such regulation made as may be found requisite.

THE HYGROMETER.

Careful observations have been made of the dry and wet bulb thermometers, and the elastic force of vapor, and relative humidity of the atmosphere deduced from them, by means of Mr. Glaisher's tables. Observations of the wet bulb require great care on the part of the observer, from liability of the muslin covering of the bulb to become partially dry, from imperfect attraction, and thus fail to indicate the true temperature of evaporation.

THE SELF-REGISTERING THERMOMETERS.

The maximum and minimum thermometers are so placed as to be subjected to a comparatively free circulation of air, and to but little, if any, reflected heat. It has been found, however, that the true maximum is slightly higher, and the true minimum slightly lower than the record, especially during the changeable months. In the steady weather of summer, walls, etc., protected from direct heat, vary but slightly from the temperature of the atmosphere.

The mean temperature recorded, however, is undoubtedly the same or nearly so, as if the thermometers were exposed more to the influence of the sun's heat by day, and to radiation at night. If there be any difference, the mean, recorded, is slightly *higher* than the truth.

Arrangements will be made to subject the thermometers to a better exposure during the coming year.

The Radiation Thermometers.

The Black-Bulb Thermometer, in a vacuum tube, is exposed on a south gallery, at an elevation of about twenty-five feet above the ground.

The Terrestrial Radiation Thermometer is exposed in long grass.

The Rain Gauge

Is of the Smithsonian pattern, and is exposed at an elevation of twelve feet above the ground.

Temperature.

Although no positive conclusions can be drawn from observations for so short a period as six months, I nevertheless invite your attention to some features presented by the observations thus far, that are worthy of remark;—one of which is the uniformity of the temperature during the summer months, as compared with the great variation in winter, strikingly shown by the line of mean temperatures on the meteorological chart, accompanying the Annual Report.

During the month of July, the highest mean temperature recorded was 86.5 deg. F., and the lowest 80.7 deg. F., showing a variation of but 5.8 deg. F. between the highest and lowest mean temperature during the month.

The highest temperature recorded, was 91.5 deg. F., and the lowest, 77 deg. F., showing the greatest range during the month to have been but 14.5 deg. F.

The greatest *daily* range was 10 deg. F., and the least, 2 deg. F.

The average or mean temperature for the month was 83.85 deg. F.

During the month of August, the highest mean temperature was 87.2 deg. F., and the lowest, 82 deg. F., showing a variation of but 5.2 deg. F. between the highest and lowest mean temperature during the month.

The highest temperature recorded was 92 deg., and the

lowest, 77 deg., showing the greatest range during the month to have been but 15.0 deg.

The greatest daily range that occurred during the month was 12 deg., and the least, 3 deg.

The mean temperature for the month was 84.45 deg.

During the month of September, the highest mean temperature was 84.2 deg., and the lowest, 73.5 deg., showing a variation of 10.5 deg. between the highest and lowest mean temperatures during the month.

The highest temperature recorded was 89.5 deg., and the lowest, 70 deg., showing the greatest range during the month to have been 19.5 deg.

The greatest daily range that occurred during the month was 11.5 deg., and the least, 2 deg.

The mean temperature for the month was 81.5 deg.

During the month of October, the highest mean temperature was 77.3 deg., and the lowest, 63 deg., showing a variation of 14.3 deg. between the highest and lowest mean temperatures during the month.

The highest temperature recorded was 80 deg., and the lowest, 60 deg., showing the greatest range during the month to have been 20 deg.

The greatest daily range during the month was 17.5 deg., and the least, 0.

The mean temperature for the month was 69.85 deg.

During the month of November, the highest mean temperature was 72 deg., and the lowest 45.2 deg, showing a variation of 26.8 deg. between the highest and lowest mean temperatures during the month.

The highest temperature recorded was 74 deg., and the lowest 38 deg., showing the greatest range during the month to have being 36 deg.

The greatest daily range during the month was 19 deg., and the least 3 deg.

The mean temperature for the month was 58.93 deg.

During the month of December, the highest mean temperature was 67.5 deg., and the lowest 27.5 deg., showing a varia-

tion of 40 deg. between the highest and lowest mean temperature during the month.

The highest temperature recorded was 74 deg., and the lowest 26 deg., showing the greatest range during the month to have been 48 deg.

The greatest daily range during the month was 19 deg., and the least 1.5 deg.

The mean temperature for the month was 53.35 deg.

Relative Humidity.

The relative humidity of the atmosphere, deduced from observations of the dry and wet bulb thermometers, has been found, thus far, to show a greater variation in winter than in summer, varying from 60 to 90 during the months of July, August and September, and from 50 to 100 during the months of October, November and December. December 25th was the only day when the record showed complete saturation.

The month of September shows the lowest mean, 73, and the month of December the highest, 83, complete saturation being represented by 100.

Solar Radiation.

The degree of radiation, as shown by the black bulb thermometer (self registering), is undoubtedly higher in New Orleans than in more northern latitudes, even when the temperature of the atmosphere is about the same.

The record of meteorological observations by Professor Orin W. Morris, at the Cooper Union, New York, accompanying the Weekly Reports of the Registrar of Vital Statistics of that city, shows the highest degree of radiation reached in July, to have been 128 deg., while in New Orleans, during the same month, 147.5 deg. were obtained.

During the month of August, the highest recorded in New York was 120 deg., and in New Orleans, 150 deg.—on August 11th.

The instruments are of similar construction, and were subjected to about the same exposure, with this exception, that in New York, the building (the Cooper Institute), on the southern as-

pect of which the thermometer is exposed, has this southern frontage on a not large open area, covered with vegetation, while in New Orleans the instrument is subjected to reflected heat from the broad paved surface of Canal street, and from the brick walls of neighboring buildings.

The Barometric Oscillations, with Reference to the Local Showers of Summer and Storms of Winter.

The record of barometric observations shows a much greater range in the winter than in the summer months.

During the months of July, August and September, there occurred no daily oscillation of one-tenth of an inch, taking the observations of 7 A. M. and 2 and 9 P. M., with one exception—September 29th, when the barometer rose from 30.08 inches at 9 A. M., to 30.19 at 9 P. M., a range of eleven hundredths of an inch.

During the months of November and December, however, daily oscillations of two-tenths of an inch were quite frequent.

The barometric mean for New Orleans is 30.00 inches in summer, and 30.20 in winter.

It has been observed that, as a general rule, the approach of the local showers of summer is not indicated by any considerable depression of the barometer, while the storms of winter or storms covering a large area, are always preceded or accompanied by a greater or less barometric depression.

As an illustration of this fact, on the first of July the barometer indicated 30.16 inches at 2 P. M. At 1.30 P. M. the city was visited by a very heavy thunder shower, lasting about thirty minutes, with a fall of eight-tenths of an inch of rain. Again, on the 2d of July, the barometer ~~noted~~ 30.12 inches at 2 P. M., and at the same hour a shower passed over the city with a fall of nine-tenths of an inch of rain.

On the 17th of July a shower passed over the city, lasting one hour and thirty minutes, with a fall of one and six-tenths inches of rain, the barometer ~~noting~~, at the time of the storm, 30.10 inches.

On the contrary, from the 9th to the 14th of July, there was a low barometric pressure, accompanied by cloudy weather and

slight rain fall each day, although but six-tenths of an inch of rain fell, in the aggregate, during the continuance of the storm; showing, in this instance, that though the fall of rain was insignificant, the storm covered a larger area, and had a marked effect upon the barometer.

Similar phenomena were observed during the months of August and September, the local showers being accompanied by but slight or no depression of the barometer. But during the months of October, November and December, every storm of any considerable duration has been indicated by a low barometric pressure.

The storm continuing through the 6th, 7th, 8th and 9th days of November, was preceded and accompanied by a very low barometer during its entire continuance, the highest being 30.00 inches at 7 A. M. on the 4th, and the lowest 29.70 inches at 9 P. M. on the 8th.

On the 6th two inches of rain fell, and on the 7th four inches.

On the 6th of November, New Orleans was visited by a violent gale, doing considerable damage to property.

At 4 P. M. the storm appeared from the Southeast, and blew with great violence, accompanied by a very heavy rain fall, for about fifteen minutes, when there was a temporary lull, and the wind veered suddenly through the South, Southwest and West, to Northwest, and blew with about equal violence from that direction for fifteen minutes longer, when the wind ceased.

The duration of the gale was but thirty minutes.

From 6 o'clock A. M., on the 5th, to 12 M., on the 6th November, the barometer remained about stationary, between 29.80 and 29.90 inches, reading at 12 M. on the 6th, 29.86. Between 1 and 2 P. M., the barometer *fell suddenly* four hundredths of an inch, reading at 2 P. M., 29.82; and at 4 P. M., when the gale first made its appearance, the pressure was 29.80 inches, making in all a fall of but six hundredths of an inch in four hours.

For two days previous the weather had been stormy, with occasional light showers, light winds, and a barometric pressure below the mean. During the day on which the gale occurred,

the wind was Southeast, and although the force of the surface wind was light, the velocity of the understratum of cloud was very rapid, showing a much greater force of wind, relatively, at their attitude than existed on the earth's surface. This continued until the gale burst upon the city, without any warning, more than the sudden barometric depression before referred to; the wind continuing from the same direction, *i. e.*, Southeast, but increasing suddenly from a light wind to a violent gale.

From the sudden barometric depression noted, and the phenomenon of a lull during the prevalence of the gale with a sudden veering of the wind, from Southeast to the opposite direction, the inference is that the gale was due to a local atmospheric disturbance, independent of the general storm which had been for two days, and at that time was prevailing, and that the disturbance only extended over an area of a few square miles.

General Albert J. Meyer, Chief Signal Officer, U. S. A., in his report for 1871, says:—"The force of a local wind at any point, and at any moment, certainly depends primarily upon the relative barometric pressure of points in the vicinity, and upon the rapidity with which the pressure has been or at that moment is changing."

It was long since established by Prof. Espy and others, that in the United States, at least, storms move forward from West to East, or nearly in this direction, the winds circling around the central area of lowest pressure, or center of the storm, with a deflection inwards of about 90 degrees. If it be assumed that the central point of the storm, measured in its extent (or considered as to its extent) from North to South, moved across New Orleans in the customary direction (a line from West to East,) then the observer would first experience a Southeast wind, continuing in this direction until the arrival of the storm centre, when he would experience a temporary lull, and a rapid veering of the wind to the opposite direction, as was observed in the gale of November 6th.

I respectfully invite your attention to the lines on the meteorological chart accompanying the Annual Report, show-

ing the amount of rain fall daily, daily degree of radiation, range of temperature and mean, mean barometric pressure and relative humidity. The green circles at the end of perpendicular bars, show not the mean range for the week, but the greatest range that occurred within each week.

I have also prepared monthly tables from the record of observations made, for the six months ending December 31st, which follow.

Respectfully submitted,

ISAAC STATHEM.

27	30.20	30.26	==	30.23	55	75	67	54	65
28	==	30.25	30.22	30.23	60	74	66	59.5	66
29	30.21	30.26	30.28	30.25	60	74	69	58.5	65
30	30.25	30.25	30.22	30.24	66	76	59	64	67
31	30.22	30.28	30.29	30.26	57	63	58	55	59
M	30.21	30.22	30.21	30.21					

9 p. m.		WINDS.						Rel. Humidity Saturation 100				RAIN FALL.
		7 a. m.		2 p. m.		9 p. m.						
Am't	Kind.	Direc'n	Force	Direc'n	Force	Direc'n	Force	7 a. m.	2 p. m.	9 p. m.	Mean.	in.
1	Cir. St.	N.	1	N.	3	E.	2	78	61	75	72	.00
0	....	N. E.	2	N. E.	3	E.	2	74	57	76	69	.00
0	....	N. E.	1	N. E.	2	S. W.	1	87	43	61	64	.00

OCTOBER, 1872.

BULB.		REGISTERING THERMOMETERS.				RADIATION THERMOM.		CLOUDS.						WINDS.						Rel. Humd'ty saturat'n 100.				RAIN FALL
								7 a m		2 p m		9 p m		7 a m		2 p m		9 p m						
m	9 p m	Maxi-mum.	Mini-mum.	Range.	Mean.	Solar.	Terres-trial.	am't	kind.	am't	kind.	am't	kind.	Direc'n	Force	Direc'n	Force	Direc'n	Force	7 a. m.	2 p. m.	9 p. m.	Mean.	in.
5	59	78.5	61	17.5	69.7	128	59	9	St.	0	....	0	....	N. E.	2	N. W.	1	N.	1	66	42	76	61	.00
5	62	76	62.5	13.5	69.2	130	55	0	....	0	....	0	....	N. E.	1	N.	1	S. E.	1	76	72	64	70	.00
	65	78	68	10	73	128.5	56	0	....	0	....	0	....	....	0	N. E.	1	W.	1	85	54	73	70	.00
	66	80	70	10	73.3	135	58	0	....	3	Cu.	0	....	N. E.	1	N.	1	E.	1	90	60	73	74	.00
	72.5	80	74	6	77	128	66	9	Cir. St.	10	Nim.	0	....	E.	1	E.	2	E.	2	94	81	86	87	.08
	73	80	75	5	77.3	97	69	3	Cir.	10	St.	10	Nim.	E.	2	E.	1	E.	1	88	75	89	80	.02
	70	76.5	74	2.5	75.2	87	69	10	Nim.	10	Cu. St.	0	....	E.	1	E.	2	N.	1	94	79	86	86	.20
	62.5	66	58	8	62	113	49	0	....	1	St.	0	....	N. E.	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	61	70	63	7	66.5	116	61.5	10	St.	8	Cir. St.	0	....	W.	1	W.	1			96	75	91	87	.00
	49	60	57	3	58.5	105	54	10	St.	8	Cir. St.	0	....	N.	2	N.	2	N.	1	92	73	84	86	.00
	46	58	52	6	55	107	43	0	....	0	....	0	....	N. E.	1	N.	2	N. W.	1	85	56	80	74	.00
	33	51	48	3	49.5	95	42	0	....	0	....	0	....	N. W.	3	W.	3	N. W.	1	67	50	56	58	.00
	45	56	38	18	47	96	32	0	....	8	Cir. St.	0	....	N. W.	1	W.	2	W.	1	67	58	85	70	.00
		62.93	54.95	7.98	58.93	102.40	49.05	4.95		4.53		3.13			1.63		2.10		1.43				78.93	6.78

DECEMBER, 1872.

JULY, 1872.

Day.	Barometer. 7 a. m.	2 p. m.	9 p. m.	Mean.	Hygrometer. Dry bulb. 7 a m	2 p m	9 p m	Wet bulb. 7 a m	2 p m	9 p m	Registering Thermometers. Maximum.	Minimum.	Range.	Mean.	Radiation Thermom. Solar.	Terrestrial.
1	30.13	30.16	30.11	30.13	79	80	78	77	76.5	76	82	80	2	81	111	76
2	30.11	30.12	30.09	31.11	77	83	77.5	75.5	78	75	87	79	8	81.3	133.5	73
3	30.08	30.08	30.05	30.07	76.5	81	77.5	75.5	76	75	87	78.5	8.5	82.7	122	73.5
4	30.05	30.04	30.03	30.04	77	85	75.5	75.5	77	73.5	86	78	8	82	145	73
5	30.04	30.04	30.07	30.05	76	85	80	75	71	77	86	77	9	81.5	140	0
6	30.09	30.09	30.07	30.08	78	88	84	75	78	81	87	79	8	83	144	0
7	30.08	30.09	30.05	30.07	80	79.5	80	76.5	79	76	90	81	9	85.5	146	74
8	30.03	30.05	30.00	30.03	80.5	90.5	89	76.5	79	79	91.5	81.5	10	86.5	147	74
9	30.00	30.00	29.98	29.99	82.5	89	78	76.5	79	75	90	83.5	6.5	86.7	143.5	75.5
10	29.96	29.96	29.92	29.95	77.5	82	79	75	77	76	89	79	10	84	129	74
11	29.88	29.91	29.88	29.89	79	85	80	75	78	76	86	79	7	82.2	133	74.5
12	29.89	29.92	29.89	29.90	78	85	79	75.5	79	76	86	78.5	7.5	82.2	133	75
13	29.89	29.90	29.88	29.89	80	86	81	76.5	77	77	88	80	8	84	143.5	0
14	29.92	29.98	29.96	29.95	80	84	80	78	77.5	77	86	80	6	83	136	77
15	29.90	30.04	30.01	29.98	78.5	85	80	76.5	77	77	87	80	7	83.5	126	76
16	30.05	30.07	30.07	30.06	79.5	88	82	76	78.5	77	90	81	9	85.5	139	75
17	30.08	30.10	30.09	30.09	79	83	79	76.5	77	77.5	87	81	6	84	139	75
18	30.12	30.17	30.16	30.13	78	86	82	77	79	77	87	79	8	83	137	74
19	30.17	30.16	30.12	30.15	79	88	79	77	75	77	89	80	9	84.5	140	75
20	30.09	30.10	30.06	30.08	78	80	76	76	74	77	82	79.5	2.5	80.7	111	75
21	30.07	30.09	30.08	30.08	78.5	90	79	77	81	76	86	79	7	82.5	137.5	75
22	30.07	30.11	30.09	30.09	79	80.5	78	77	75	75	86	79	7	82.5	135	75
23	30.10	30.16	30.12	30.13	77	85	80	76	76	76.5	88	78	10	83	142	73
24	30.13	30.14	30.11	30.12	79	88	82	76	78	77.5	89.5	80	9.5	84.7	147	74
25	30.13	30.19	...	30.14	79	88	84.5	76.5	78.5	79	90	81	9	85.5	142	75
26	....	30.18	30.12	30.15	80	89	78.5	77	79	76	91	82	9	86.5	147.5	76
27	30.09	30.08	30.03	30.07	79	90	77	80	75	=	=	81	=	=	147.5	77
28	30.02	30.07	30.04	30.04	=	90	83	=	80	79.5	91	=	=	=	144	=
29	30.06	30.15	30.12	30.11	80	89	84	78	79.5	79.5	91	81	10	86	145	74.5
30	30.15	30.16	30.12	30.14	80	90	84	78	79	79.5	91	82	9	86.5	146	75
31	30.11	30.10	30.07	30.09	81	89	82	78	78.5	79	90	83	7	86.5	143	77
M	30.05	30.08	30.05	30.06							87.9	80	7.8	83.85	137.9	74.8

Day.	Clouds. 7 a m am't	kind.	2 p m am't	kind.	9 p m am't	kind.	Winds. 7 a m Direc'n	Force	2 p m Direc'n	Force	9 p m Direc'n	Force	Rel. Hum'd'ty saturat'n 100. 7 a. m.	2 p. m.	9 p. m.	Mean.	Rain fall in.
1	0	.....	10	Nim.	0	.....	N. E.	1	S. W.	3	W.	1	90	82	91	88	.79
2	1	Cir.	10	Nim.	0	.....	N. E.	2	E.	3	W.	1	92	76	87	85	.90
3	0	.....	10	Nim.	0	.....	W.	1	S. E.	3	S. E.	1	94	75	88	86	.02
4	8	St.	9	Cu. St.	3	Cu. St.	W.	2	S.	4	S.	1	92	64	87	81	.01
5	3	Cir. Cu.	2	Cu. St.	0	.....	N. W.	3	N. W.	3	N. W.	1	95	46	85	75	.00
6	1	.....	1	Cu.	0	.....	N. W.	1	N. W.	3	W.	1	83	58	85	75	.00
7	4	Cir. St.	2	Cu. St.	0	.....	N.	1	W.	3	S. W.	1	82	54	80	72	.00
8	1	.....	4	Cu. St.	0	.....	N.	1	N. W.	3	N. E.	3	80	54	60	65	.00
9	0	.....	2	Cu.	10	Nim.	N. E.	3	S. E.	1	E.	1	84	60	84	76	.20
10	4	Cir. Cu.	10	Nim.	8	Cu. St.	N. E.	1	N. E.	1	W.	2	87	77	84	83	.20
11	3	Cu.	0	.....	1	Cu. St.	W.	3	.....	0	W.	1	79	68	80	76	.20
12	8	Cu. St.	9	Cu. St.	2	Nim.	W.	2	S. W.	3	S.	1	86	76	84	82	.01
13	3	Cir. Cu.	9	Cu.	0	.....	N. W.	2	S. W.	3	.....	0	82	61	80	74	.00
14	0	.....	7	Cir. Cu.	0	.....	W.	3	.....	0	S.	3	89	70	84	81	.00
15	9	Cir. St.	0	Cir. St.	2	Cir.	E.	2	S. E.	4	S.	3	89	68	84	80	.00
16	1	Cir.	3	Cir. Cu.	4	Cir.	E.	3	S. E.	4	E.	3	81	60	76	72	.00
17	0	.....	10	Cir. Cu.	0	.....	E.	1	E.	1	E.	1	86	67	91	81	1.60
18	7	Cir. St.	9	Cu. St.	2	Cu. St.	E.	1	S.	3	S.	1	93	68	76	79	.00
19	8	St.	9	Cu. St.	10	Nim.	E.	1	W.	4	.....	0	89	48	89	75	.00
20	10	Cu. St.	10	St.	10	Cir. Cu.	E.	1	S. E.	2	S. E.	2	89	76	94	86	.10
21	10	St.	8	Cir. Cu.	5	Cir. Cu.	W.	1	W.	4	S. E.	1	91	62	87	80	.05
22	8	Cir. St.	10	Nim.	0	.....	N. W.	2	S. E.	4	S. E.	1	89	73	84	82	.01
23	5	Cir.	3	Cu. St.	0	.....	E.	1	W.	2	S.	3	94	61	92	79	.00
24	0	.....	2	Cu.	0	.....	W.	1	W.	3	S.	2	85	41	78	68	.00
25	0	.....	2	Cu.	0	.....	W.	1	W.	2	S.	1	86	60	78	75	.00
26	1	Cir. Cu.	2	Cu. St.	10	Nim.	W.	2	W.	1	W.	1	84	58	86	76	.10
27	0	.....	4	Cu. St.	10	Nim.	W.	2	W.	2	W.	1	89	59	89	79	.90
28	0	.....	2	Cu. St.	0	.....	.....	0	N. W.	1	N. W.	1	=	56	82	69	.00
29	4	Cir. Cu.	4	Cu.	0	.....	W.	1	N. W.	1	S.	3	89	60	78	76	.00
30	1	Cir.	3	Cu.	0	.....	W.	2	N. W.	3	W.	1	89	57	78	74	.00
31	1	Cir. Cu.	10	Cu. St.	0	.....	W.	3	N. E.	1	S.	1	84	58	85	76	.00
M	3.18		6.2		2.48			1.8		2.6		1.4				77.6	5.09

AUGUST, 1872.

Day of M'th.	Barometer. 7 a. m.	2 p. m.	9 p. m.	Mean.	Hygrometer. Dry bulb. 7 a m	2 p m	9 p m	Wet bulb. 7 a m	2 p m	9 p m	Registering Thermometers. Maximum.	Minimum.	Range.	Mean.	Radiation Thermomt's. Solar.	Terrestrial.
1	30.04	30.04	30.04	30.04	79.5	84	76.5	78	77	74.5	91	82	9	86.5	142	77
2	30.04	30.04	30.02	30.03	77	84.5	80	75	78	76	86	78	8	82	141.5	73
3	30.01	30.03	30.01	30.02	76.5	87	80	71.5	79	72	88	79.5	8.5	83.7	145	71
4	30.04	30.08	30.06	30.06	75	88	79	70	76.5	71	87	78	9	82.5	144.5	69
5	30.07	30.10	30.08	30.08	77	87	82	71.5	72.5	76	88	79	9	83	145	68
6	30.08	30.10	30.07	30.08	78	88	83	75	78	78	90	81	9	85.5	150	73
7	30.09	30.12	30.09	30.10	=	86	85	=	77.5	79	88	81	7	84.5	137.5	=
8	30.10	30.14	30.11	30.12	79	87	81.5	75.5	78	78	89	81	8	85	142	73
9	30.12	30.14	30.10	30.12	80	90	80	77	78.5	77	90	80	10	85	145	73.5
10	30.10	30.11	30.09	30.10	78	87.5	82	77	78	78	89	80	9	84.5	137	73
11	30.08	30.09	30.08	30.08	80	92	80.5	77	78.5	76.5	90	82	8	86	140	74
12	30.07	30.09	30.07	30.08	82	90	89	79	80	78.5	92	81.5	10.5	86.7	141.5	74
13	30.04	30.03	30.02	30.03	79.5	90.5	79	77.5	79	76	91.5	83	8.5	87.2	142	75
14	30.01	30.03	30.01	30.02	78	89	78	76	80	76	91	81	10	86	138	73.5
15	30.03	30.05	30.03	30.04	78	87.5	84	75	78.5	78	89	80	9	84.5	137.5	73
16	30.06	30.07	30.07	30.07	79	90	82	74.5	76	77	90.5	82	8.5	86.2	139	73
17	30.07	30.10	30.10	30.09	79.5	85	78.5	77	78	76	89	82	7	85.5	143	73
18	30.10	30.17	30.15	30.14	79	81.5	78	77	78	75.5	83	80	3	81.5	139	74
19	30.04	30.18	30.16	30.13	78	83.5	80	77	79	77	87	79	8	83	136.5	73
20	30.17	30.21	30.21	30.20	76.5	80.5	75	77	76	72.5	89	80	8	84.5	143	71
21	30.20	30.24	30.21	30.22	75	85	80	74	77	77	85	77	8	81	138	74
22	30.21	30.22	30.17	30.20	78.5	80	82	76.5	79	76	88	79.5	8.5	83.7	140	73
23	30.14	30.13	30.06	30.11	79	90	82	77	78	77	91	81	10	86	141.5	74
24	30.04	30.05	30.01	30.03	78.5	84	80	77	75	76	90	81	9	85.5	137	74
25	30.04	30.10	30.08	30.07	77	90	84	75	80	79.5	90	81	9	85.5	142	72
26	30.10	30.15	30.11	30.12	79	83	77.5	77	77	75.5	88	82	6	85	142	75
27	30.11	30.14	30.09	30.11	76	86	77.5	75	79	75	87	80	7	83.5	138	72
28	30.07	30.10	30.08	30.08	75.5	87	77.5	74	77.5	75	87	79	8	83	137.5	71.5
29	30.07	30.08	30.03	30.06	76	86	80	75	76	76	88	78	10	83	136	70
30	30.02	30.03	29.98	30.01	79	89	81	76	76	76	91	79	12	85	139	73.5
31	29.99	30.02	30.00	30.00	77	87	80	73	76	74	87	80	7	83.5	137	72.5
M	30.08	30.10	30.07	30.085							88.70	80.24	8.46	84.45	139.29	72.85

Day of M'th.	Clouds. 7 a. m. am't	Kind.	2 p. m. am't	Kind.	9 p. m. am't	Kind.	Winds. 7 a. m. Direc'n	Force	2 p. m. Direc'n	Force	9 p. m. Direc'n	Force	Rel. Hum'y. saturat'n 100 7 a. m.	2 p. m.	9 p. m.	Mean.	Rain Fall In.
1	10	St.	10	Nim.	10	Cir. Cu.	W.	1	N. E.	1	S.	1	92	68	89	83	.56
2	6	Cu. St.	5	Cu. St.	0	.....	N.	3	N. E.	1	W.	2	89	74	80	81	.00
3	5	Cir.	1	Cir. Cu.	0	.....	N. E.	3	W.	3	E.	1	73	65	63	67	.00
4	1	Cir.	1	Cu.	0	.....	N. E.	3	N. W.	3	W.	1	74	53	63	64	.00
5	1	Cir.	8	Cir.	0	.....	N. W.	3	W.	2	S. W.	1	72	45	71	66	.00
6	0	.....	2	Cu.	0	.....	S. W.	1	W.	2	S. W.	1	79	58	79	68	.00
7	0	.....	8	Cu. St.	0	.....	.....	0	E.	1	W.	4	=	63	73	68	.00
8	1	Cir.	8	Cu. St.	0	.....	W.	1	E.	1	S.	1	82	61	82	75	.00
9	0	.....	9	Cu. St.	0	.....	W.	1	S.	1	W.	1	84	54	84	74	.00
10	4	Cu.	0	.....	0	.....	N. E.	1	W.	1	W.	1	94	60	80	78	.00
11	0	.....	2	Cu.	0	.....	W.	1	N. W.	1	S. W.	1	84	49	79	71	.00
12	4	Cu. St.	1	Cir.	0	.....	N. E.	3	W.	2	N. W.	1	85	59	57	67	.00
13	4	Cir. Cu.	10	St.	0	.....	N. W.	1	N.	2	W.	1	89	54	84	76	.01
14	4	Cir. Cu.	1	Cu.	10	Cu. St.	N. E.	1	W.	3	S. W.	2	89	62	89	80	.80
15	1	Cir.	1	Cu.	0	.....	N. W.	3	N. W.	3	S. W.	1	84	61	72	70	.00
16	0	.....	0	.....	0	.....	N.	1	N. W.	2	S. W.	3	75	47	76	66	.01
17	0	.....	4	Cir.	0	.....	.....	0	S. E.	2	E.	3	87	68	88	81	.15
18	8	Cir. St.	8	Cir. Cu.	0	.....	N. E.	2	S. E.	1	N. E.	1	89	81	82	84	.025
19	0	.....	10	Cu. St.	8	Cir. St.	N. E.	1	S. E.	1	E.	2	94	80	84	86	.85
20	1	Cu.	10	Nim.	0	.....	N. E.	3	N. E.	2	N. E.	1	92	78	89	86	.61
21	2	Cir. St.	8	Cir. Cu.	0	.....	N. E.	1	N. E.	3	E.	1	94	64	84	80	.00
22	4	Cu.	0	.....	0	.....	N. E.	3	N.	1	S. E.	1	89	68	71	76	.00
23	10	St.	0	.....	0	.....	N.	1	S. E.	2	S. W.	1	89	52	76	72	.00
24	1	Cir. Cu.	9	Cu. St.	0	.....	.....	0	S. E.	1	S. W.	2	91	60	80	77	.00
25	0	.....	2	Cu.	0	.....	S.	1	N.	2	S. E.	3	89	59	78	75	.00
26	9	Cu. St.	10	Cu. St.	0	.....	N. E.	1	N. E.	2	E.	1	89	72	89	83	.25
27	0	.....	2	Cir. Cu.	0	.....	W.	1	E.	1	W.	1	94	68	84	82	.00
28	0	.....	4	Cu. St.	0	.....	S.	1	.....	0	W.	1	91	59	84	78	.08
29	0	.....	1	Cu.	0	.....	W.	1	S. W.	2	W.	1	94	58	80	77	.00
30	0	.....	1	Cir. Cu.	10	Cir. St.	N.	1	N. W.	2	N.	1	84	49	75	69	.00
31	2	Cir. Cu.	1	Cu.	0	.....	N. E.	3	N.	2	S. W.	1	79	55	71	68	.00
M	1.77		4.77		2.			1.68		1.76		1.38				75.	3.345

SEPTEMBER, 1872.

Day.	Barometer. 7 a. m.	2 p. m.	9 p. m.	Mean.	Hygrometer. Dry bulb 7 a m	2 p m	9 p m	Wet bulb. 7 a m	2 p m	9 p m	Registering Thermometers. Maximum.	Minimum.	Range.	Mean.	Radiation Thermom's. Solar.	Terrestrial.
1	30.04	30.08	30.08	30.07	73	86	79	69	77	74	87	77	10	82	137	67.5
2	30.14	30.15	30.14	30.15	73	86	79	68	76	74	87	77	10	82	136	69
3	30.15	30.15	30.11	30.14	75	86	77.5	72.5	71	69	87	79	8	83	137	70
4	30.12	30.14	30.11	30.13	72	86	79	68.5	73	72	86.5	77.5	9	82	137	63
5	30.12	30.10	30.08	30.10	75	86	80	70	76	74	87	78.5	8.5	82.7	139	67
6	30.10	30.14	30.12	30.12	75	87	80.5	72	76	76	88	79	9	83.5	142	67
7	30.14	30.16	30.15	30.15	78	88	78	75	77	75	87	80	7	83.5	139	0
8	30.12	30.14	30.10	30.12	74	89	82	72	78	77	88	79	9	83.5	139	71
9	30.12	30.13	30.10	30.12	76	88	81	74	76	77	89	80	9	84.5	137	71
10	30.10	30.10	30.08	30.09	77	86	79	75	78	76	89	80.5	8.5	84.7	145	73.5
11	30.08	30.10	30.08	30.08	77	87	79	75	77	75	87	80	7	83.5	142	71
12	30.10	30.10	30.10	30.10	75	84	73.5	73	70	67	89	78	11	83.5	136.5	71.5
13	30.12	30.18	30.15	30.15	69.5	79	72.5	63	67	66	80	78	2	79	131	65.5
14	30.15	30.20	30.18	30.18	67	79.5	72	62	65.5	66	79.5	71.5	8	75.5	136	59
15	30.13	30.15	30.10	30.13	65	83	76.5	62	70	70	81	72.5	8.5	76.7	137	61
16	30.09	30.08	30.08	30.08	73	85	77.5	69	78	72.5	80	46.5	9.5	81.2	138.5	69
17	30.07	30.08	30.07	30.07	75	84.5	77	72	73	72	84	79	5	81.5	136	72.5
18	30.09	30.10	30.09	30.09	70	84	78	69	76	71	84	76	8	80	136	64
19	30.09	30.12	30.11	30.11	70.5	86.5	79.5	69	71	73	87	76	11	81.5	137.5	64.5
20	30.17	30.19	30.20	30.19	73	86.5	79	70	75	74	87	78	9	82.5	138	69
21	30.19	30.20	30.19	30.19	75	85.5	74	72.5	75	71	80	79	7	82.5	131	71
22	30.17	30.16	30.15	30.16	76	76	74	73	73	71.5	79	76	3	77.5	122	71
23	30.14	30.16	30.16	30.15	73	79	76.5	71.5	76	73.5	70	75.5	10.5	80.7	130	68.5
24	30.19	30.20	30.18	30.19	75	85	80	74	77.5	76	87.5	76	11.5	81.7	137	70.5
25	30.23	30.22	30.19	30.21	75	85	80	73	77	76	89.5	79	10.5	84.2	128.5	72
26	30.13	30.11	30.06	30.10	75	88	79.5	73	76	75	89	78	11	83.5	138	71
27	30.06	30.08	30.03	30.05	76	86	79	75	77	74	87	78.5	8.5	82.7	140.5	71
28	30.05	30.08	30.06	30.06	76.5	88	79	73.5	76	75.5	88	80	8	84	134.5	72.5
29	30.08	30.18	30.19	30.15	77	74.5	73.5	75.5	71	68	79	76.5	2.5	77.7	89	74
30	30.22	30.25	30.23	30.23	66	77	70	61	62	59	77	70	7	73.5	131	59
M	30.12	30.14	30.12	30.13							85.60	77.38	8.21	81.48	134.6	69.08

Day.	Clouds. 7 a. m. a'mt	Kind.	2 p. m. am't	Kind.	9 p. m. am't	Kind.	Winds. 7 a. m. Direc'n	Force	2 p. m. Direc'n	Force	9 p. m. Direc'n	Force	Rel. Humidity Saturation 100 7 a. m.	2 p. m.	9 p. m.	Mean.	Rain Fall. in.
1	0	.....	1	Cu.	1	Cir. St.	N.	1	N.	3	E.	2	78	61	75	72	.00
2	1	Cu.	0	.....	0	.....	N. E.	2	N. E.	3	E.	2	74	57	76	69	.00
3	0	.....	0	.....	0	.....	N. E.	1	N. E.	2	S. W.	1	87	43	61	64	.00
4	0	.....	1	Cir.	0	.....	W.	1	N. E.	1	S. E.	2	80	49	67	69	.00
5	0	.....	4	Cu.	0	.....	N.	1	N. E.	1	E.	2	74	57	71	67	.00
6	0	.....	4	Cu.	0	.....	S. E.	1	E.	2	S. E.	2	84	57	78	73	.00
7	0	.....	10	Cu. St.	0	.....	E.	1	S. E.	2	W.	1	84	56	84	75	.10
8	0	.....	1	Cu.	0	.....	N.	1	W.	1	.....	.....	88	55	78	73	.00
9	0	.....	1	Cu.	4	Cir. St.	N. E.	1	N.	2	S. W.	1	89	54	80	74	.00
10	9	Cir. St.	9	Cu. St.	1	Cir. Cu.	N. E.	1	E.	2	.....	.....	89	64	84	79	.00
11	4	Cu. St.	2	Cu. St.	6	Cir. St.	N. E.	1	N. E.	2	S. W.	1	89	58	79	75	.02
12	8	Cir. St.	3	Cu. St. 1 Cir.	2	Cir.	N.	1	S. W.	2	.....	.....	89	45	67	77	.00
13	5	Cir.	1	Cir. St.	3	Cir.	N. E.	3	N. W.	2	S. W.	1	67	50	67	61	.00
14	5	Cir.	4	Cir.	10	Cir. 2 Cir.	N. E.	3	N.	1	S. W.	1	73	44	69	63	.00
15	8	Cir.	9	Cir.	10	St.	.....	.....	N. W.	1	S.	1	82	48	71	67	.00
16	2	Cir. 8 Cir. Cu.	2	Cu.	10	St.	N.	1	N. E.	1	S.	1	78	69	75	74	.00
17	10	St.	1	Cu. St.	0	.....	N. E.	1	N. E.	2	S.	1	84	54	77	72	.00
18	0	.....	0	.....	0	.....	N. E.	1	N.	1	S.	2	94	64	67	75	.00
19	0	.....	0	.....	0	.....	S. W.	1	N. W.	3	S.	1	90	42	69	67	.00
20	0	.....	1	Cu.	0	.....	S. W.	1	E.	2	S. E.	1	85	53	75	71	.00
21	0	.....	4	Cu. St. 2 Cir.	10	Nim.	.....	.....	E.	3	N. E.	1	86	56	83	75	.00
22	10	St.	10	St.	0	.....	E.	2	N. E.	1	E.	2	84	84	81	83	.45
23	5	Cu.	10	St.	0	.....	N. E.	1	N. E.	1	S. E.	1	91	84	84	86	.72
24	0	.....	6	Cu.	0	.....	E.	1	S. E.	2	S. E.	1	94	66	81	80	.00
25	8	Cir.	3	Cir. 2 Cu.	0	.....	N. W.	1	N. W.	2	S.	1	89	64	81	78	.00
26	2	Cir.	4	Cu.

OCTOBER, 1872.

Day.	Barometer 7 a. m.	Barometer 2 p. m.	Barometer 9 p. m.	Barometer Mean.	Hygrometer Dry Bulb 7 a m	Dry Bulb 2 p m	Dry Bulb 9 p m	Wet Bulb 7 a m	Wet Bulb 2 p m	Wet Bulb 9 p m	Registering Thermometers Maximum.	Minimum.	Range.	Mean.	Radiation Thermom. Solar.	Terrestrial.
1	30.30	30.34	30.29	30.31	61	73.5	63	55	59.5	59	78.5	61	17.5	69.7	128	59
2	30.30	30.22	30.26	30.29	63	75	69	59	61.5	62	76	62.5	13.5	69.2	130	55
3	30.24	30.22	30.19	30.22	60	77.5	70	58	67	65	78	68	10	73	128.5	56
4	30.18	30.16	30.14	30.16	65.5	80	71	64	71	66	80	70	10	73.3	135	58
5	30.12	30.12	30.12	30.12	73	80	75	72	75	72.5	80	74	6	77	128	66
6	30.11	30.10	30.09	30.10	73	79	75	71	74	73	80	75	5	77.3	97	69
7	30.08	30.06	30.07	30.08	71	76	72.5	70	72	70	76.5	74	2.5	75.2	87	69
8	30.07	30.08	30.07	30.07	67.5	78	74	65	70.5	72	78	70.5	7.5	74.2	141.5	66
9	30.07	30.12	30.11	30.10	73.5	76	74.5	73	75	73.5	78	74	4	76	122	71
10	30.11	30.13	30.15	30.13	74	76	71	73	74	67.5	76.5	74	2.5	75.2	112.5	72
11	30.20	30.23	30.23	30.22	60	68.5	62	53.5	59	55	69	69	0	69	119	59
12	30.23	30.22	30.20	30.22	54	66	59	50	56	55.5	68	59	9	63.5	122.5	51
13	30.20	30.20	30.19	30.20	58	73	67.5	53	60	59	70.5	62	8.5	66.2	122	48
14	30.21	30.25	30.25	30.24	59	65.5	62	53	57	52	70	64	6	67	122.5	51
15	30.29	30.30	30.26	30.28	51	66	61	47	56	57	67	59	8	63	121	45
16	30.28	30.30	30.30	30.26	57	72	67	55	64	64	71.5	61.5	10	66.5	123	50.5
17	30.32	30.32	30.32	30.32	64	76	67	63	65	64	71	67.5	3.5	69.2	126.5	60
18	30.32	30.32	30.29	30.31	63	77	67.5	61	65	62	76.5	68.5	8	72.5	—	59
19	30.29	30.28	30.26	30.27	60	73	64	55	66	59	73	66	7	69.5	129	55
20	30.26	30.25	30.20	30.24	57	75	70	52	63.5	66	73.5	69	4.5	71.2	128	51
21	30.18	30.16	30.14	30.16	65	75	69	63.5	72	67	75	64	11	69.5	93	61.5
22	30.11	30.14	30.15	30.13	68	72	67	66.5	68	65	73	70	3	71.5	122.5	66
23	30.19	30.23	30.25	30.22	65	73.5	67	64	66	63	74	67	7	70.5	123.5	62
24	30.26	30.30	30.30	30.28	61.5	66	62.5	59	62	60.5	68	64	4	66	75	61
25	30.28	30.28	30.26	30.27	59	64	59.5	57.5	59.5	57.5	67	63	4	65	74	59.5
26	30.24	30.24	30.20	30.22	54.5	67	62	54	61	60	67	60	7	63.5	126	51
27	30.20	30.26	—	30.23	55	75	67	54	65	61.5	71	63	8	67	122	53
28	—	30.25	30.22	30.23	60	74	66	59.5	66.5	61	73.5	64	9.5	68.7	128	55
29	30.21	30.26	30.28	30.25	60	74	69	58.5	65.5	65	74	66	8	70	128	56
30	30.25	30.25	30.22	30.24	66	76	69	64	67.5	58	77	69	8	63	129	63
31	30.22	30.28	30.29	30.26	57	63	58	55	59	56	65	61	4	63	70	57
M	30.21	30.22	30.21	30.21							73.42	66.43	6.98	69.85	116.46	58.55

Day.	Clouds 7 a m am't	7 a m kind.	2 p m am't	2 p m kind.	9 p m am't	9 p m kind.	Winds 7 a m Direc'n	7 a m Force	2 p m Direc'n	2 p m Force	9 p m Direc'n	9 p m Force	Rel. Hum'dty saturat'n 100. 7 a. m.	2 p. m.	9 p. m.	Mean.	Rain Fall in.
1	9	St.	0	.....	0	.....	N. E.	2	N. W.	1	N.	1	66	42	76	61	.00
2	0	.....	0	.....	0	.....	N. E.	1	N.	1	S. E.	1	76	72	64	70	.00
3	0	.....	0	.....	0	.....	.....	0	N. E.	1	W.	1	85	54	73	70	.00
4	0	.....	3	Cu.	0	.....	N. E.	1	N.	1	E.	1	90	60	73	74	.00
5	9	Cir. St.	10	Nim.	0	.....	E.	1	E.	2	E.	2	94	81	86	87	.08
6	3	Cir.	10	St.	10	Nim.	E.	2	E.	1	E.	1	88	73	89	80	.02
7	10	Nim.	10	Cu. St.	0	.....	E.	1	E.	2	N.	1	94	79	86	86	.20
8	10	St.	10	St.	10	St.	N. E.	1	N. E.	2	E.	1	85	68	89	79	.97
9	10	Nim.	10	Nim.	10	St.	E.	1	E.	1	E.	1	92	98	99	98	1.00
10	10	St.	10	Nim.	10	St.	N. E.	1	N.	1	N. E.	3	94	89	80	88	.00
11	10	St.	7	Cir.	0	.....	N.	4	N.	1	N.	1	64	54	67	61	.00
12	1	Cir.	0	.....	0	.....	N.	1	N.	1	N.	1	74	52	78	68	.00
13	0	.....	0	.....	0	.....	N.	1	N.	1	N.	2	70	45	58	58	.00
14	0	.....	0	.....	0	.....	N.	1	N.	1	N.	1	76	48	50	58	.00
15	0	.....	0	.....	0	.....	N.	1	E.	1	E.	2	83	52	76	70	.00
16	0	.....	1	Cir.	0	.....	E.	1	E.	1	E.	1	87	61	86	78	.00
17	0	.....	0	.....	0	.....	E.	1	E.	2	N. E.	1	94	52	86	77	.00
18	1	Cir.	4	Cir.	1	Cir.	W.	1	N. W.	1	W.	1	87	49	70	69	.00
19	1	Cir.	6	Cir.	4	Cir.	N. W.	1	N. W.	1	N. W.	1	71	65	72	69	.00
20	8	St.	2	Cir	0	.....	.....	0	S.	1	E.	1	70	50	78	66	.00
21	10	St.	10	Nim.	10	St.	W.	1	E.	1	E.	3	90	84	88	87	.11
22	10	St.	5	Cir. St.	0	.....	E.	2	E.	1	N.	1	90	78	88	85	.10
23	0	..	0	.....	0	.....	N.	1	N.	2	N.	3	93	64	77	78	.00
24	10	St.	10	St.	10	St.	N.	2	N. W.	2	N. W.	1	84	77	87	83	.00
25	10	St.	10	St.	0	.....	W.	3	N. W.	2	.....	0	90	73	85	83	.00
26	10	St.	9	St.	0	.....	W.	1	N.	1	.....	0	97	68	87	84	.00
27	0	.....	0	.....	0	.....	.....	0	N. W.	1	S.	1	93	55	70	73	.00
28	0	.....	2	Cu. 5 Cir.	0	.....	N. E.	1	E.	1	E.	1	96	64	72	78	.00
29	0	...	3	Cu. 3 Cir.	0	.....	E.	1	E.	3	E.	1	90	60	78	78	.00
30	8	Cir. St.	3	Cu.	10	St.	E.	1	E.	2	N.	3	88	30	93	80	.24
31	10	St.	10	St.	10	St.	N.	2	N. E.	2	N. E.	2	87	76	83	82	.00
M	4.84		4.80		2.75			1.35		1.35		1.41				76	2.72

NOVEMBER, 1872.

Day.	Barometer 7 a. m.	Barometer 2 p. m.	Barometer 9 p. m.	Barometer Mean.	Hygrometer Dry Bulb 7 a m	Dry Bulb 2 p m	Dry Bulb 9 p m	Wet Bulb 7 a m	Wet Bulb 2 p m	Wet Bulb 9 p m	Registering Thermometers Maximum.	Minimum.	Range.	Mean.	Radiation Thermom's. Solar.	Terrestrial.
1	30.04	30.05	30.04	30.04	57.5	68	66	57	58.5	65	69	58.5	10.5	63.7	115	53
2	30.04	30.12	30.08	30.08	61	65.5	58	58.5	60	55.5	67	63	4	65	78	61
3	30.10	30.10	30.06	30.09	52	70	61	49	60	57	69	59	10	64	126	47
4	30.00	29.96	29.90	29.95	62.5	68	68	60	65	66.5	69	63	6	66	85	55
5	29.88	29.88	29.86	29.87	67	70	67	66	68	66	70	66	4	68	78	65
6	29.85	29.82	29.79	29.82	69	72.5	66.5	68	71.5	66.5	74	68	6	71	78	66
7	29.78	29.91	29.91	29.87	61	65	60	65.5	53	59	68	64	4	66	90	61
8	29.80	29.75	29.70	29.75	59	60	57.5	59	59	57	64	60	4	62	68	58
9	29.71	29.77	29.78	29.75	57	63	61	57	60	60	69	59	10	64	111	60
10	29.85	29.90	29.91	29.87	61	68	65.5	60	65	64	67.5	61	16.5	64.2	117	59
11	30.00	30.00	29.99	29.99	58.5	70.5	66	58	64	63	71	65.5	7.5	67.2	121	55
12	30.00	29.97	29.91	29.96	63	71	69	62.5	67	67	73	65.5	7.5	69.2	127	58
13	29.88	29.84	29.80	29.84	69	80	72	68	72	70	81	63	18	72	129	63
14	29.88	30.04	30.14	30.02	58	57	47	52	47	38	66	63	3	64.5	102	57
15	30.04	30.34	30.32	30.33	33	47	41	28.5	40	35	48	41	7	44.5	92	34
16	30.40	30.44	30.44	30.43	35	48	42	30	40	37	50	41	9	45.5	95	36
17	30.50	30.50	30.44	30.48	33	48	45.5	31.5	43	40	48.5	42	6.5	45.2	99	34
18	30.45	30.40	30.38	30.41	37	45	41.5	36.5	41	40	49	42	7	45.5	90	37
19	30.34	30.30	30.26	30.30	35	51	45	34	44	41	51	42	9	46.5	93.5	32
20	30.22	30.20	30.19	30.20	38	33	49	37	46	45	55	45	10	50	99	35
21	30.11	30.06	30.02	30.06	44.5	65	58	44	58.5	56	66	47	19	56.5	112	38
22	30.19	30.23	30.25	30.22	46	57	48	42	48	44	59	54	5	56.5	103.5	45
23	30.28	30.28	30.26	30.27	42	58	52	40	50	49.5	58.5	50	8.5	54.2	109	36
24	30.23	30.20	30.16	30.20	52	66	58	51	61	56	64.5	52	12.5	58.3	121	45
25	30.12	30.09	30.02	30.08	53	65	63.5	52	63	62.5	66	58	8	62	113	49
26	30.00	30.03	30.01	30.01	62	69	62	61.5	64.5	61	70	63	7	66.5	116	61.5
27	30.14	30.20	30.20	30.18	52	59	57.5	57	54.5	49	60	57	3	58.5	105	54
28	30.30	30.33	30.30	30.31	41	56	49	42	48	46	58	52	6	55	107	43
29	30.40	30.40	30.43	30.41	42.5	48.5	39	38	40	33	51	48	3	49.5	95	42
30	30.40	30.35	30.20	30.32	31	51	47	28.5	44	45	56	38	18	47	96	32
M	30.11	30.11	30.09	30.10							62.93	54.95	7.98	58.93	102.40	49.05

Day.	Clouds 7 a. m. a'mt	7 a. m. Kind.	2 p. m. am't	2 p. m. Kind.	9 p. m. am't	9 p. m. Kind.	Winds 7 a. m. Direc'n	7 a. m. Force	2 p. m. Direc'n	2 p. m. Force	9 p. m. Direc'n	9 p. m. Force	Rel. Humidity. Saturation 100. 7 a. m.	2 p. m.	9 p. m.	Mean.	Rain Fall. in.
1	10	St.	10	St.	10	St.	N. E.	1	E.	3	E.	1	97	54	93	81	.06
2	10	St.	10	St.	0	.....	N. W.	3	N.	1	S. W.	1	87	70	84	80	.00
3	0	.....	0	.....	0	.....	E.	1	E.	3	E.	1	80	53	76	67	.00
4	5	Cir.	2	Cir. St.	10	Nim.	E.	1	E.	3	E.	2	84	83	91	86	.00
5	10	St.	10	St.	10	Nim.	E.	2	E.	2	N. E.	3	94	8	94	92	.00
6	10	St.	10	St.	10	Nim.	S. E.	1	S. E.	1	S. E.	1	94	94	100	96	1.95
7	10	St.	10	St.	10	Nim.	N.	2	N.	4	N. E.	1	96	88	95	93	4.00
8	10	St.	10	St.	10	Nim.	N. E.	4	E.	4	N. E	1	100	93	95	96	.17
9	10	St.	10	St.	10	St.	N. E.	1	N. E.	1	E.	1	100	82	93	92	.10
10	10	St.	4	Cir. Cu.	0	.....	E.	1		0	S.	1	93	83	90	89	.00
11	3	Cir. Cu. 3 St.	0	.....	8	Cir. Cu.	E.	1	N. E.	1	S. E.	2	97	67	82	82	.10
12	6	Cir.	9	Cu. St.	1	Cir. Cu.	E.	1	S. W.	1	S. E.	1	96	78	88	87	.00
13	8	Cir. St.	3	Cu.	5	Cir. St.	S.	1	W.	3	S. W.	1	94	64	88	82	.00
14	2	Cir. Cu.	0	.....	0	.....	N. W.	1	N. W.	4	N. W.	5	66	49	51	55	.00
15	0	.....	0	.....	0	.....	N. W.	3	N. W.	4	N. W.	3	56	56	66	57	.00
16	0	.....	0	.....	0	.....	N. W.	3	N. W.	2	N. W.	1	58	52	64	58	.00
17	0	.....	7	Cir. Cu. 3 St.	10	St.	N. W.	1	E.	2	E.	2	83	64	63	70	.00
18	10	St.	2	Cir. St.	0	.....	N. E.	2	E.	2	E.	1	95	71	88	85	.30
19	0	.....	0	.....	0	.....	S. E.	1	W.	1	N. E.	1	89	58	72	73	.00
20	0	.....	0	.....	0	.....	S. W.	1	N.	1	N. W.	1	91	59	73	74	.00
21	0	.....	3	Cu.	0	.....	E.	2	S. W.	2	N. W.	1	94	64	87	82	.00
22	0	.....	0	.....	0	.....	N. E.	1	S. W.	1	W.	1	72	52	72	65	.00
23	0	.....	0	.....	0	.....	E.	1	E.	1	E.	2	84	57	83	75	.00
24	10	Cir. St.	0	.....	0	.....	E.	1	S. E.	2	S. E.	1	92	72	87	85	.00
25	0	.....	1	St.	0	.....	N. E.	1		0			92	88	93	91	.00
26	10	St.	8	Cir. St.	0	.....	W.	1	W.	1			96	75	91	87	.00
27	10	St.	8	Cir. St.	0	.....	N.	2	N.	2	N.	1	92	73	84	86	.00
28	0	.....	0	.....	0	.....	N. E.	1	N.	2	N. W.	1	85	56	80	74	.00
29	0	.....	0	.....	0	.....	N. W.	3	W.	3	N. W.	1	67	50	56	58	.00
30	0	.....	8	Cir. St.	0	.....	N. W.	1	W.	2	W.	1	67	58	85	70	.00
M	4.53		3.13					1.63		2.10		1.43				78.93	6.78

DECEMBER, 1872.

Day of M'th.	Barometer 7 a. m.	Barometer 2 p. m.	Barometer 9 p. m.	Barometer Mean.	Hygrometer Dry Bulb 7 a m	Dry Bulb 2 p m	Dry Bulb 9 p m	Wet Bulb 7 a m	Wet Bulb 2 p m	Wet Bulb 9 p m	Registering Thermometers Maximum.	Minimum.	Range.	Mean.	Radiation Thermomet's. Solar.	Terrestrial.
1	30.07	30.00	30.00	30.02	50	69	63	49	62	60	66	47	19	56.5	118	47
2	30.03	30.13	30.14	30.10	60	68	66	59.5	64	63	69	62	7	65.5	120	60
3	30.20	30.24	30.25	30.23	55	68	63.5	54	64	60.5	69	66	3	67.5	124	53.5
4	30.26	30.27	30.24	30.26	53.5	65	58	49	58	55	65	58.5	6.5	61.7	114	52.5
5	30.20	30.19	30.19	30.19	55	64	60	53	61	56.5	65	57	8	61	112	53
6	30.18	30.17	30.18	30.18	56	62	60	53	59	55	63	59	4	61	79	54
7	30.20	30.20	30.19	30.20	53.5	65	56	51	57	52	65	58	7	61.5	119	52.5
8	30.18	30.12	30.09	30.13	47	67	56	46	57	51.5	65	57	8	61	106	46
9	30.10	30.14	30.19	30.14	51	56.5	47.5	47	51.5	40.5	59	55	4	57	105	47
10	30.22	30.23	30.12	30.19	35	42	37	32.5	40	36	47.5	45	2.5	46.5	56	37
11	30.20	30.25	30.32	30.26	36	41	34.5	36	39	34	42	40	2	41	55	39
12	30.45	30.48	30.48	30.49	32	40	36	30	36	34	42	36	6	39	72	36
13	30.50	30.48	30.41	30.46	33	49	38	32	39	35	44	38	6	41	96	30
14	30.40	30.31	30.24	30.32	38	51	54	36	49	51	57	40	17	48.5	111	32
15	30.21	30.18	30.11	30.17	54.5	70	63	53.5	64	61	64	50	14	57	110	55
16	30.08	30.03	30.02	30.04	62	69	64	62	66	63	71	58	13	64.5	102	60
17	30.05	30.04	30.02	30.04	54	61	58	54	59	58	66	60	6	63	67	55
18	30.00	30.04	30.07	30.04	64	63.5	55	64	61	55	66	60	6	63	72	56
19	29.98	29.86	29.82	29.89	58	73	64	58	71	63	74	58	16	66	89	—
20	30.02	30.08	30.12	30.07	49	54	46	47.5	51	43	60	58.5	1.5	59.2	64	51
21	30.20	30.26	30.40	30.29	39	54	39.5	38	49	35.5	56	46	10	51	100	39
22	30.43	30.40	30.32	30.38	30	42	41	28	39	40	48	40	8	44	90	33
23	30.27	30.16	30.04	30.16	46	59	58	45.5	56	55.5	61	42	19	51.5	106	39
24	29.94	29.96	29.95	29.95	57	59	43	56	58	42	60	55	5	57.5	62	55
25	29.92	29.88	29.88	29.89	37	37	35	37	37	35	47	45	2	46	56	40
26	29.92	30.03	30.20	30.05	32	39	30	32	36	29	42	40	2	41	47	36
27	30.35	30.41	30.41	30.39	20	31	28	19	28	26	34	21	13	27.5	85	27
28	30.48	30.46	30.40	30.45	28	38.5	41	26	36	39	45	26	19	35.5	93	29
29	30.38	30.40	30.40	30.39	43	57.5	57	42	54	48.5	55.5	37	18.5	46.2	110	42
30	30.35	30.33	30.22	30.32	46	57	52.5	45	54	51	59	49	10	54	110	45
31	30.25	30.23	30.20	30.22	55	63	59	54.5	61	57	65	52	13	58.5	117	55
M	30.19	30.20	30.18	30.19							57.80	48.90	8.90	53.35	93.13	45.22

Day of M'th.	Clouds 7 a. m. am't	7 a. m. Kind.	2 p. m. am't	2 p. m. Kind.	9 p. m. am't	9 p. m. Kind.	Winds 7 a. m. Direc'n	7 a. m. Force	2 p. m. Direc'n	2 p. m. Force	9 p. m. Direc'n	9 p. m. Force	Relative Humidity (saturation 100.) 7 a. m.	2 p. m.	9 p. m.	Mean.	Rain Fall in.
1	8	Cir. St.	10	St.	0	.....	S.	1	S. E.	5	S. E.	4	92	64	83	80	.00
2	0	.....	2	St.	0	.....	S.	1	N. W.	1	S. E.	1	96	78	85	86	.00
3	0	.....	1	Cu. St.	0	.....	N.	1	N.	1	.....	0	93	78	82	86	.00
4	9	Cir. Cu.	0	.....	0	.....	N. E.	2	E.	1	.....	0	71	63	81	72	.00
5	9	Cu. St.	10	St.	10	St.	E.	2	E.	2	E.	1	86	95	79	87	.00
6	10	St.	10	St.	9	St.	E.	3	E.	2	E.	1	81	80	71	77	.00
7	1	Cir.	1	Cir.	8	Cir.	E.	3	N. E.	1	E.	1	83	59	75	72	.00
8	1	Cir.	0	.....	0	.....	N.	1	W.	1	N.	1	91	52	72	72	.00
9	0	.....	0	.....	0	.....	.....	0	N.	3	N.	4	73	72	56	67	.00
10	10	St.	10	Nim.	10	St.	N.	4	N. E.	4	N. E.	4	77	84	90	84	1.00
11	10	St.	10	St.	10	St.	N.	4	N. E.	3	N.	5	100	84	95	93	.00
12	8	Cir.	10	St.	1	Cir.	N.	4	N. E.	3	N. W.	1	75	70	82	76	.00
13	2	Cir.	1	Cir.	0	.....	N.	4	N. E.	3	.....	0	88	44	75	69	.00
14	7	Cir. St.	7	Cu.	10	St.	N. E.	1	S. E.	2	E.	1	83	86	87	83	.00
15	7	Cir.	10	St.	1	Cir.	N. E.	1	S. E.	2	S. E.	3	93	69	87	83	.00
16	10	St.	10	St.	10	St.	S. E.	2	S. W.	3	.....	0	100	83	100	92	.01
17	10	St.	10	St.	10	St.	S.	1	N. W.	1	S. E.	2	100	87	100	96	.00
18	10	St.	10	Nim.	10	Nim.	S.	1	N.	3	N.	2	100	85	100	95	2.20
19	10	St.	10	St.	10	Nim.	S. E.	1	S. E.	5	S. E.	5	100	88	93	94	.60
20	10	St.	10	St.	10	St.	S. E.	1	N.	3	N.	1	88	80	77	82	.01
21	0	.....	0	.....	0	.....	N.	3	N.	1	N.	4	91	64	69	77	.00
22	0	.....	8	Cir. Cu.	0	.....	N.	3	N.	3	E.	1	69	77	91	79	.00
23	10	St.	5	Cir. St.	10	St.	N.	3	E.	2	E.	3	93	81	84	86	.00
24	10	St.	10	St.	10	St.	E.	2	E.	3	E.	3	93	93	91	92	.70
25	10	St.	10	St.	10	St.	E.	2	N. W.	3	N. W.	3	100	100	100	100	.00
26	10	St.	10	St.	10	St.	E.	2	N. W.	4	N.	5	100	76	84	87	.00
27	9	Cir.	5	Cir. St.	10	St.	W.	3	N.	3	N.	3	67	61	63	64	.00
28	8	Cir. St.	0	.....	10	St.	N.	4	N. E.	2	N. E.	1	63	79	84	75	.00
29	10	St.	1	Cir. St.	0	.....	N.	1	E.	2	E.	2	92	78	82	84	.

LB.	Registering Thermometers.				Radiation Thermomet's.		Clouds.						Winds.						Relative Humidity (saturation 100.)				Rain Fall
							7 a. m.		2 p. m.		9 p. m.		7 a. m.		2 p. m.		9 p. m.						
9 p m	Maximum.	Minimum.	Range.	Mean.	Solar.	Terrestrial.	am't	Kind.	am't	Kind.	am't	Kind.	Direc'n	Force	Direc'n	Force	Direc'n	Force	7 a. m.	2 p. m.	9 p. m.	Mean.	In
60	66	47	19	56.5	118	47	8	Cir. St.	10	St.	0	.....	S.	1	S. E.	5	S. E.	4	92	64	83	80	.00
63	69	62	7	65.5	120	60	0	.....	2	St.	0	.....	S.	1	N. W.	1	S. E.	1	96	78	85	86	.00
60.5	69	66	3	67.5	124	53.5	0	.....	1	Cu. St.	0	.....	N.	1	N.	1	.....	0	93	78	82	86	.00
55	65	58.5	6.5	61.7	114	52.5	9	Cir. Cn.	0	.....	0	.....	N. E.	2	E.	1	.....	0	71	63	81	72	.00
56.5	65	57	8	61	112	53	9	Cu. St.	10	St.	10	St.	E.	2	E.	2	E.	1	86	95	79	87	.00
55	63	59	4	61	79	54	10	St.	10	St.	9	St.	E.	2	E.	2	E.	1	81	80	71	77	.00
52	65	58	7	61.5	119	52.5	1	Cir.	1	Cir.	8	Cir.	E.	3	N. E.	1	E.	1	83	59	75	72	.00
51.5	65	57	8	61	106	46	1	Cir.	0	.....	0	.....	N.	1	W.	1	N.	1	91	52	72	72	.00
40.5	59	55	4	57	105	47	0	.....	0	.....	0	.....	.....	0	N.	3	N.	4	73	72	56	67	.00
36	47.5	45	2.5	46.5	56	37	10	St.	10	Nim.	10	St.	N.	4	N. E.	4	N. E.	4	77	84	90	84	1.00
34	42	40	2	41	55	39	10	St.	10	St.	10	St.	N.	4	N. E.	3	N.	5	100	84	95	93	.00
34	42	36	6	39	72	36	8	Cir.	10	St.	1	Cir.	N.	4	N. E.	3	N. W.	1	75	70	82	76	.00
35	44	38	6	41	96	30	2	Cir.	1	Cir.	0	.....	N.	4	N. E.	3	.....	0	88	44	75	69	.00
51	57	40	17	48.5	111	32	7	Cir. St.	7	Cn.	10	St.	N. E.	1	S. E.	2	E.	1	83	86	80	83	.00
61	64	50	14	57	110	55	7	Cir.	10	St.	1	Cir.	N. E.	1	S. E.	2	S. E.	3	93	69	87	83	.00
63	71	58	13	64.5	102	60	10	St.	10	St.	10	St.	S. E.	2	S. W.	3	.....	0	100	83	94	92	.01
58	66	60	6	63	67	55	10	St.	10	St.	10	St.	S.	1	N. W.	1	S. E.	2	100	87	100	96	.00
55	66	60	6	63	72	56	10	St.	10	Nim.	10	Nim.	S.	1	N.	3	N.	2	100	85	100	95	2.20
63	74	58	16	66	89	=	10	St.	10	St.	10	Nim.	S. E.	1	S. E.	5	S. E.	5	100	88	93	94	.60
43	60	58.5	1.5	59.2	64	51	10	St.	10	St.	10	St.	S. E.	1	N.	3	N.	1	88	80	77	82	.01
35.5	56	46	10	51	100	39	0	.....	0	.....	0	.....	N.	3	N.	1	N.	4	91	64	69	77	.00
40	48	40	8	44	90	33	1	Cir.	8	Cir. Cn.	0	.....	N.	3	N.	3	E.	1	69	77	91	79	.00
55.5	61	42	19	51.5	106	39	10	St.	5	Cir. St.	10	St.	N.	3	E.	2	E.	3	93	81	84	86	.00
42	60	55	5	57.5	62	55	10	St.	10	St.	10	St.	E.	2	E.	3	E.	3	93	93	91	92	.70
35	47	45	2	46	56	40	10	St.	10	St.	10	St.	E.	2	N. W.	3	N. W.	3	100	100	100	100	.00
29	42	40	2	41	47	36	10	St.	10	St.	10	St.	E.	2	N. W.	4	N.	5	100	76	84	87	.00
26	34	21	13	27.5	85	27	9	Cir.	5	Cir. St.	10	St.	W.	3	N.	3	N,	3	67	61	63	64	.00
39	45	26	19	35.5	93	29	8	Cir. St.	0	.....	10	St.	N.	4	N. E.	2	N. E.	1	63	79	84	75	.00
48.5	55.5	37	18.5	46.2	110	42	10	St.	1	Cir. St.	0	.....	N.	1	E.	2	E.	2	92	78	82	84	.00
51	59	49	10	54	110	45	0	.....	10	Cir. St.	0	.....	E.	2	E.	2	E.	2	92	80	89	87	.00
57	65	52	13	58.5	117	55	0	.....	10	St.	0	.....	S. E.	2	S. E.	2	S. E.	1	96	88	86	90	.00
	57.80	48.90	8.90	53.35	93.13	45.22	6.45		6.48		5.13			2.06		2.45		2.09				82.80	4.52

MORTUARY REPORT OF THE SECRETARY,

S. C. Russell, M. D.

Office Board of Health,
New Orleans, La., Dec. 31, 1872.

To the Members of the Board of Health :

The following is the Annual Report of Interments, made in the City of New Orleans, during the year 1872 :

Mortuary Report of the City of New Orleans, from January 1*st to December* 31*st*, 1872.

DISEASES.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Abscess	1	1	1					1			2	1	7
Abscess of the bladder												1	1
Abscess of the kidneys			1										1
Abscess of the liver	1	1	1	1	1			2			1	3	11
Abscess of the pelvis						1							1
Abscess, psoas					1			1					2
Abscess of the thigh				1									1
Albuminuria	3	2						2					7
Amputation				1								1	2
Aneurism of the aorta		1	1	1		1	1	1	1			1	8
Anæmia	2	4	2		3	3	2	2	3	4	2		27
Angina								1					1
Angina, pectoris	1	1			1								3
Apoplexy	6	9	5	10	6	4	10	11	3	2	4	15	85
Asthma	3	5	1	7			1		1		1	1	20
Atrophia			1	1	2			2					6
Bronchitis	10	30	8	7	5	3	2	3	6	3	5	17	99
Bright's disease	5	5	3	6	6	6	1	2	4	4	3	2	47
Burns or scalds	6	9	2	1	3	4	2		2	1	8	3	41
Cancer	1	1		6	4	4		1		3	2	5	27
Cancer of the abdomen									1				1
Cancer of the bladder				1									1
Cancer of the brain	1												1
Cancer of the breast						1							1
Cancer of the face		1							1		1		3
Cancer of the heart								1					1
Cancer of the liver						1	1	1	1		1		5
Cancer of the mouth	1												1
Cancer of the stomach		2	1		2	2	1		3	2	3	1	17
Cancer of the throat								1					1
Cancer of the tongue		1											1
Cancer of the womb	3	2	2	1	4	1	4	2	4	3	2	2	30

Mortuary Report—Continued.

DISEASES.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Catarrh	1	3	3		2	1	1	1	1	3	1		17
Chlorosis								1					1
Cholera infantum				2	25	10	4	4	2	2	3		52
Cholera morbus					7	3		2	4	4			20
Cirrhosis of the liver	1	4	6	2	3	3	6	5	4	4	2	4	44
Colic				1						1			2
Compression of the brain			1	1	2								4
Concussion of the brain	2			1				1		2			6
Congestion		1			2	3		1					7
Congestion of the bowels	2	1		1	2			1			1	1	9
Congestion of the brain	14	22	15	13	22	12	17	26	12	18	6	9	186
Congestion of the heart									1				1
Congestion of the liver		1			2								3
Congestion of the lungs	5	9	6	2	5	1	1	8	3	3	7	3	53
Congestion of the stomach	1				1			2	1	1	3	1	10
Constipation of the bowels		1			1								2
Consumption	56	81	58	49	79	66	56	76	57	79	68	59	784
Convulsions, adult	1	1	1	1		2	1	3	2	2	3	2	19
Convulsions, infantile	22	20	7	13	35	37	11	25	19	13	12	13	227
Convulsions, puerperal								1		1			2
Coxalgia							1						1
Croup	1	2	3		2	1	1	1	3	4	5	3	26
Cyanosis		2			1	2		1			2	1	9
Debility		1			1								2
Debility, adult		12	9	3	10	6	4	12	7	11	7	4	85
Debility, infantile	11	9	8	7	11	10	15	16	5	14	12	9	127
Delirium tremens	2	4	3	3	3	1	1	2	1	2	1		23
Diarrhœa	6	15	4	6	10	8	5	10	6	4	6	2	82
Diarrhœa, acute		2							1	1	1	1	6
Diarrhœa, chronic	8	9	4	8	16	5	9	9	11	10	9	9	107
Dislocation of the neck		1	1				1						3
Disease of the aorta											1		1
Disease of the bowels	1												1
Disease of the brain			1				1			1			3
Disease of the kidneys	1	1				1				1			4
Disease of the liver	1			2		1	1	1	1	1		2	10
Disease of the ovary					2	1							3
Disease of pregnancy							1						1
Disease of the skin	1						1						2
Disease of the throat										1			1
Disease of the spine		1											1
Disease of womb					1	1			2		1		5
Diabetes												1	1
Diphtheria	4	5	3	2	6		3		5	5	5	1	39
Dropsy	10	9	8	7	8	9	4	3	9	6	5	10	88
Dropsy of the abdomen			3	2				2	1	2			10
Dropsy of the brain	1	2		2	3	1	1					2	12
Dropsy of the chest					1								1
Dropsy of the heart			2	1	2			1	2	1			9
Dropsy of the lungs						1							1
Dropsy, ovarian											1		1
Drowned	3	3	1	9	10	6	6	7	7	7	3	2	64

Mortuary Report—Continued.

DISEASES.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Dysentery	5	8	6	5	8	9	7	4	2	2	7	8	71
Dysentery, acute					1			1			2		4
Dysentery, chronic	5	1		3	1	6	5	9	3	3	3	9	48
Dyspepsia							1						1
Dysuria			1										1
Elephantiasis	1												1
Emphysema	2	2											4
Emphysema of the lung			1			1							2
Empyema				1								2	3
Endo-carditis											1	1	2
Entero-colitis	2		1		2	7	1	8		1			22
Erysipelas	1	2	2	1	3	4	3	2			1		19
Epilepsy	5	3	2	1	1	1	2	1	2		1	2	21
Exposure	1											1	2
Fever			1										1
Fever, bilious	1		1	2	2	3	4	4	3	1		1	22
Fever, congestive	11	13	16	9	19	8	18	25	16	20	5	5	165
Fever, gastric		1											1
Fever, hectic							2						2
Fever, intermittent	2	1	1	1	2	2	4	5	4	1	1	3	27
Fever, malarial		6	2	1	5	3	3	8	9	8	3	3	51
Fever, nervous		1											1
Fever, puerperal		5		1		1			1	1	1		10
Fever, remittent	1			1	3	2	5	4	6	2	2		26
Fever, scarlet					3								3
Fever, scarlet malignant				1			1						2
Fever, typhoid	3	5	5	3	5	4	7	6	10	6	4	9	67
Fever, typhus			1					1				2	4
Fever, yellow								1	5	24	7	2	39
Fistula-in-ano				1			1						2
Fracture of femur	1												1
Fracture of leg	1		1										2
Fracture of the neck			2										2
Fracture of the skull	1	2	1	3	2		2	1	1	1	1	1	16
Fracture of the spine		1		1					1				3
Fracture of the vertebrae							1						1
Gangrene				1					1		1		3
Gangreue of the feet			1		1								2
Gangrene of the lungs	1						1		1				3
Gangrene of the leg							1	1	1				3
Gangrene of the rectum								1					1
Gangrene Senile		2				2							4
Gastro-Enteritis	5	9	4	5	12	8	8	10	3	3	6	4	77
Gout						1							1
Hemorrhage		1		3	3	1	5	4		1	1	4	23
Hemorrhage from the bowels				1		1			1		2		5
Hemorrhage from the lungs	4	1	1	1	2	1	2		2	1	2		17
Hemorrhage from the navel			1				3	2		1			7
Hemorrhage from stomach				1				1			1		3
Hemorrage from the womb			2		1	1			1				5
Heart, disease of	16	13	14	15	14	10	7	11	14	17	13	25	169
Heart disease, valvular	5	8	1	3	4	2	2	4	2	2	1	1	35

Mortuary Report—Continued.

DISEASES.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Heart, enlargement of	2	2	2	3	3	2	3	2	2	6		5	32
Hernia		1											1
Hernia, strangulated								1		1			2
Hemiplegia						1	1	1		1			4
Hooping cough			1			2	6	1	4	4	1	4	23
Hydrophobia				1		1		1					3
Hysteria	2												2
Imperforate anus	1								1				2
Inflammation		1						1					2
Inflammation of the bladder		1						1	1		1	1	5
Inflammation of the bowels	7	4	8	10	21	22	17	15	11	16	9	10	150
Inflammation of the brain	3	3	4	5	5	2	3	7	9	7	4	3	55
Inflammation of the heart	1	4	1	2	5	2	1		3	2	3	3	27
Inflammation of the kidneys		1								2			3
Inflammation of the liver	4	3	2	4	6	9	5	4	8	4	4	3	56
Inflammation of the mouth		1											1
Inflammation of the stomach	4	2	2	4	6		5	4		2	2	5	36
Inflammation of the throat					1							2	3
Inflammation of the tonsils								1					1
Inflammation of the veins										1		1	2
Inflammation of the womb				2	1						1		4
Infanticide		2			1		1	2		1		1	8
Inanition	1	3	2	1	6	6	2	4	2	4	3	2	36
Influenza	1		1										2
Insanity	1	1		1	1		2	1				1	8
Injuries	5	4	1	3	7	3	9	8	9	9	9	4	71
Intemperance		1					2	2			2	4	11
Intussusception of intestines		1	1	1	1		1	1			3		9
Jaundice				1				1		1			3
Killed, accidentally	2				1			1	1	1	3	1	10
Labor, difficult			2				2	1	2	2	3	1	13
Laryngitis	1	1			2	2				3		1	10
Leucocythemia			1						1				2
Lightning						1	4						5
Lockjaw	6	4	4	5	10	8	4	10	13	3	3	3	73
Marasmus, adult	3	1			1	1	1	1	3	2	1	2	16
Marasmus, infantile	6	12	9	5	40	37	24	22	12	21	9	7	204
Measles	1	9	2	10	22	17	10	3	1		1		76
Meningitis	2	6	13	9	12	26	11	5	7	5	3	7	106
Meningitis, cerebro-spinal	1	3	5	10	11	6	1	3		2		2	44
Myelitis										2			2
Neuralgia					1								1
Oedema of the glottis						1						1	2
Old age	12	11	8	9	13	5	3	5	3	6	8	8	91
Paralysis	4		3	3	2	2	1	7		1	1	1	25
Paraplegia			1										1
Peritonitis	1	6	5	1	10	2	3	3		1	2	4	38
Pericarditis	1		1		2	3				1		1	9
Pleurisy	2		3	1		2	2			1	1	1	13
Pneumonia	37	83	41	24	19	22	12	10	3	15	17	34	317
Pneumonia, pleuro	1	2	1	1	3		1			1	1	2	13
pneumonia, typhoid			2	1	1	1							5

Mortuary Report—Continued.

DISEASES.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Poison							3	1	1		2		7
Premature birth	7	5	6	6	7	8	6	1		6	4	8	64
Pyemia	1		1		2		1	2		1	3	2	13
Purpura	1				1	1						1	4
Rachitis	1					1							2
Retention of the urine			1										1
Rheumatism		2	5	2	2	3			1	1	3	1	20
Rheumatism of the heart			1				1				1		3
Rupture of the bladder	1												1
Rupture of the heart			1										1
Septemia										1			1
Stricture of the esophagus					1			1					2
Stricture of the urethra						1							1
Scrofula			1			1						4	6
Scurvy						1							1
Small pox		2	5	5	4	1				1		11	29
Sclerema							1						1
Softening of the brain	4	4		3	5	3	5	3	2	1		3	33
Softening of the stomach									1		2		3
Softening of the spinal cord					1								1
Spina-Bifida					1			1					2
Spasm of the glottis			1			1							2
Suffocation	4	2	1	3	1	1	1	7	3	3	6	1	33
Suicide	1	1	2	1	8	2	4	2	2			3	26
Sunstroke						2	2	3					7
Syphilis					1				1	1	1		4
Syphilis, tertiary	1	3	1	3	1	1			1	3	1		15
Tabes mesenterica	2	3	1	2	6	5	7	5	1	2		4	38
Teething	4	4	2	6	8	19	9	7	5	11	9	6	90
Trismus nascentium	17	22	13	9	21	15	16	22	18	42	22	21	231
Tuberculosis	5	10	9	6	5	8	7		1				58
Tumor						1							1
Tumor of the abdomen	1				1								2
Tumor of the breast				1									1
Tumor of the ovary			1				1		1				3
Ulceration								1					1
Ulceration of the bones			1		1								2
Ulceration of the bowels	1	1	1		3	1	2	1		2	1	1	14
Ulceration of the femur		1											1
Ulceration of the leg		1	1										2
Ulceration of the liver		1											1
Ulceration of the mouth											1		1
Ulceration of the navel						1							1
Ulceration of the stomach				1				1					2
Ulceration of the throat		1								1	2		4
Unknown		3	1	1	3	1	2	3	2	2	3	2	23
Uraemia		1	1		2	1	1						6
Wounds	1			1			1	1	1	1			6
Wounds, gunshot	5	3		3	1	1		5	2	3	2	1	26
Worms					1							1	2
Not stated	5	5	4	4		5	3	3	2	2	6	3	42
	447	630	430	418	713	572	483	569	425	532	430	473	6122

Mortuary Report—Continued.

DISEASES.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Still-born children reported in the city	35	41	33	26	38	46	54	38	45	44	37	29	466

The Mortuary Reports are compiled weekly from reports of interments made by the sextons of the city cemeteries. The rule in compiling the monthly reports is to include in a monthly report, the week containing the greatest number of days in that month. Thus, the report for January, ends at 6 P. M. on January 28th. The report for the week ending at 6 P. M., February 4th, containing but three days in January, and four in February, was included in the report for February. The report for the week ending 6 P. M., March 3d, was also included in the monthly for February, for the same reason. This rule gives to four months in the year an unfair percentage of mortality.

COLOR.

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
White	292	407	278	264	450	336	303	370	260	346	267	298	3871
Black	109	132	106	98	180	162	109	116	98	102	96	116	1424
Mulattoes	44	72	42	49	63	57	68	76	63	71	60	54	719
Not stated	2	19	4	7	20	17	3	7	4	13	7	5	108
Total	447	630	430	418	713	572	483	569	425	532	430	473	6122

SEX.

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Males	269	353	270	261	395	328	289	315	239	297	236	274	3526
Females	177	275	158	155	314	239	192	250	186	232	192	198	2568
Not stated	1	2	2	2	4	5	2	4		3	2	1	28
Total	447	630	430	418	713	572	483	569	425	532	430	473	6122

AGES.

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Under 1 year	101	129	76	69	197	167	117	125	71	137	94	84	1367
From 1 to 2 years	16	31	12	25	59	81	42	41	32	24	18	24	405
From 2 to 5 years	21	31	24	23	50	29	39	23	30	26	22	19	337
From 5 to 10 years	5	18	17	10	16	10	9	16	15	18	13	15	162
From 10 to 15 years	3	12	10	10	10	5	14	13	9	11	8	9	114
From 15 to 20 years	15	13	20	10	17	8	12	20	15	19	9	12	170
From 20 to 25 years	17	23	32	25	45	22	23	21	19	34	30	36	327
From 25 to 30 years	24	42	30	24	25	34	26	42	39	27	28	27	368
From 30 to 40 years	65	80	53	53	78	67	54	64	56	64	58	60	750
From 40 to 50 years	63	77	55	51	64	51	38	60	50	70	44	52	675
From 50 to 60 years	41	59	40	47	48	42	48	57	29	29	40	49	529
From 60 to 70 years	32	50	19	23	25	17	30	38	28	34	27	42	365
From 70 to 80 years	14	31	26	24	27	16	9	16	12	14	15	16	220
From 80 to 90 years	9	7	1	7	6	3	7	2	3	4	5	8	62
From 90 to 100 years	2	8	7	2	5	2	1	1	1	2	2	1	34
100 years and upwards	2	4	0	1	2	0	0	4	0	0	4	1	18
Unknown	17	15	8	14	39	18	14	26	16	19	15	18	219
Total	447	630	430	418	713	572	483	569	425	532	430	473	6122

NATIVITIES.

COUNTRIES.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Africa	1	1	1		1	1	2	1	1			2	11
Austria	1		1	1			2				1	1	7
British America								2		2		2	6
Canada	2	1		1	2	1			1				8
China		2		1	1					1			5
Denmark	1		3	1	2				1	2		1	11
England	4	8	2	12	7	6	2	8	3	7	4	6	69
France	18	23	11	18	20	19	17	30	19	11	10	16	212
Germany	44	52	27	24	36	30	39	40	19	34	25	41	411
Greece					1								1
Holland		2				1							3
Ireland	48	61	39	47	50	30	39	53	39	39	45	47	537
Italy	3	4	3	1	5	3	3	7	6	3	1	4	43
Malta			1										1
Mexico	1	1			1				1				4
Norway				1			2						3
Poland		1	1										2
Portugal			1	1	1				1	2	3	2	11
Prussia			1		2	2		2	2	3		2	14
Russia		1			1		1		1			1	5
Scotland	5	3	4	4	3	2	3	4	1	2	2	3	36
Spain	5	6			5	2	2	6	4	2	4	2	38
Sweden	2	2	1	2	1		3		1				12
Switzerland	1	3	1	2	7	2	2	5	1	4	2	1	31
United States	304	433	316	291	553	457	352	399	315	409	318	327	4474
Wales					1							1	2
West Indies	2	8	4	5	7	9	6	7	4	2	9	5	68
Not stated	5	18	13	6	6	7	8	5	5	9	6	9	97
Total	447	630	430	418	713	572	483	569	425	532	430	473	6122

TABLE I.—Showing the Relative Mortality of Children under two years of age, in the City of New Orleans, during the year 1872, according to population—United States census of 1870.

MONTH.	Number of Deaths.		Percentage of Deaths to population.		Number of, to 1000 popula'n.	
	White.	Colored.	White.	Colored.	White.	Col'd.
January	68	49	.0097	.0210	9.70	20.99
February	97	63	.0138	.0270	13.80	26.90
March	56	32	.0080	.0137	8.02	13.70
April	59	35	.0084	.0149	8.43	14.90
May	175	81	.0250	.0347	25.00	34.70
June	154	94	.0220	.0402	22.05	40.20
July	82	77	.0117	.0330	11.70	32.99
August	94	72	.0135	.0309	13.46	30.84
September	59	44	.0084	.0188	8.44	18.80
October	100	61	.0143	.0261	14.32	26.13
November	72	40	.0103	.0172	10.30	17.16
December	61	47	.0087	.0201	8.73	20.13
Average	89.75	57.91	.0128	.0248	12.85	24.80
Total	1077	695	.1542	.2978	154.20	297.80

White population under 2 years.....6984

Colored population under 2 years.....2334

TABLE II—Showing the percentage of Deaths, by Ages, According to the Population, in New Orleans, during the year 1872.—*U. S. Census of* 1870.

AGES.	Population by ages.	JANUARY.			FEBRUARY.			MARCH.			APRIL.			MAY.			JUNE.		
		No. of d'hs.	Per c't age of pop'n.	No. of dea'hs to 1000 pop'n.	No. of d'hs.	Per ct of pop'n.	No. of deathes to 1000 pop'n.	No. ot d'hs	Per ct of pop'n.	No. of dea'hs to 1000 pop'n.	No. of d'hs.	Per ct of pop'n.	No. of dea'hs to 1000 pop'n.	No. of d'hs	Per ct of pop'n.	No. of dea'hs to 1000 pop'n.	No. of d'hs.	Per ct of pop'n.	No. of dea'hs to 1000 pop'n.
Under 1 year	5,135	101	.0196	19.66	129	.0251	25.12	76	.0148	14.80	69	.0134	13.44	197	.0384	38.36	167	.0325	32.50
From 1 to 2 years	4,183	16	.0038	3.80	31	.0074	7.41	12	.0028	2.86	25	.0059	5.97	59	.0141	4.10	81	.0193	19.36
From 2 to 5 years	15,387	21	.0014	1.36	31	.0020	2.01	24	.0016	1.56	23	.0015	1.48	50	.0033	3.25	29	.0019	1.88
From 5 to 10 years	21,114	5	.0002	.24	18	.0008	.85	17	.0008	.80	10	.0004	.47	16	.0007	.76	10	.0004	.47
From 10 to 15 years	22,150	3	.0001	.13	12	.0005	.54	10	.0004	.45	10	.0004	.45	10	.0004	.45	5	.0002	.22
From 15 to 20 years	18,433	15	.0008	.81	13	.0007	.70	20	.0010	1.08	10	.0005	.54	17	.0009	.92	8	.0004	.43
From 20 to 25 years	17,743	17	.0009	.95	23	.0013	1.29	32	.0018	.180	25	.0014	1.46	45	.0025	2.50	22	.0012	1.24
From 25 to 30 years	16,597	24	.0014	1.45	42	.0026	2.60	30	.0018	.180	24	.0014	1.45	25	.0015	1.50	34	.0020	2.05
From 30 to 40 years	28,804	65	.0022	2.25	80	.0027	2.70	53	.0018	1.84	53	.0018	1.84	78	.0027	2.71	67	.0023	2.33
From 40 to 50 years	21,967	63	.0028	2.86	77	.0035	3.50	55	.0025	2.50	51	.0023	2.32	64	.0029	2.91	51	.0023	2.32
From 50 to 60 years	12,267	41	.0033	3.33	59	.0048	4.80	40	.0032	3.26	47	.0038	3.83	48	.0039	3.90	42	.0034	3.44
From 60 to 70 years	5,374	32	.0059	5.95	50	.0093	9.30	19	.0035	3.53	23	.0042	4.28	25	.0046	4.65	17	.0032	3.16
From 70 to 80 years	1,711	14	.0081	8.12	31	.0181	18.10	26	.0151	15.10	24	.0140	14.00	27	.0157	15.70	16	.0093	9.35
From 80 to 90 years	398	9	.0226	22.60	7	.0175	17.50	1	.0025	2.51	7	.0175	17.50	6	.0150	14.99	3	.0075	7.49
From 90 to 100 years	116	2	.0172	17.24	8	.0488	69.96	7	.0603	60.34	2	.0172	17.24	5	.04 1	43.10	2	.0172	17.24
100 years and upwards	39	2	.0564	56.41	4	.1128	112.82	0	.....	.....	1	.0282	28.20	2	.0564	56.41	0	.....	.....
Unknown	.....	17	.....	.....	15	.....	.....	8	.....	.....	14	.....	.....	39	.....	.....	18	.....	.....
Total	191,418	447			630			430			418			713			572		

TABLE II.—Continued.

AGES.	JULY.			AUGUST.			SEPTEMBER.			OCTOBER.			NOVEMBER.			DECEMBER.			TOTALS.		
	No. of d'ths	Per c of pop'n	No. of deaths to 1000 popl'n.	No. of d'ths	Per c of pop'n	No. of deaths to 1000 popl'n.	No. of d'ths	Per c of pop'n	No. of deaths to 1000 popl'n.	No. of d'ths	Per c of pop'n	No. of deaths to 1000 popl'n.	No. of d'ths	Per c of pop'n	No. of deaths to 1000 popl'n.	No. of d'ths	Per c of pop'n	No. of d'ths to 1000 popl'n	No. of dth's	Per c't of popl'n	No. of deaths to 1000 popl'n
Under 1 year	117	.0228	22.78	125	.0244	24.14	71	.0138	13.82	137	.0267	26.68	94	.0183	18.30	84	.0164	16.36	1367	.2662	266.21
From 1 to 2 years	42	.0100	10.03	41	.0098	9.80	32	.0076	7.65	24	.0057	5.73	18	.0043	4.30	24	.0054	5.73	405	.0968	96.82
From 2 to 5 years	39	.0025	2.54	23	.0015	1.49	30	.0019	1.95	26	.0017	1.69	22	.0014	1.43	19	.0012	1.23	337	.0219	21.90
From 5 to 10 years	9	.0004	.43	16	.0007	.76	15	.0007	.71	18	.0008	.85	13	.0006	.61	15	.0007	.71	162	.0077	7.67
From 10 to 15 years	14	.0006	.63	13	.0003	.59	9	.0004	.46	11	.0005	.49	8	.0004	.36	9	.0004	.46	114	.0051	5.15
From 15 to 20 years	12	.0007	.65	20	.0010	1.08	15	.0007	.81	19	.0010	1.03	9	.0005	.49	12	.0006	.65	170	.0092	9.22
From 20 to 25 years	23	.0013	1.29	21	.0011	1.18	19	.0010	1.06	34	.0019	1.90	30	.0017	.70	36	.0020	2.02	327	.0184	18.40
From 25 to 30 years	26	.0015	1.56	42	.0026	2.60	39	.0020	2.35	27	.0016	1.62	28	.0017	1.69	27	.0016	1.62	368	.0222	22.17
From 30 to 40 years	54	.0018	1.87	64	.0022	2.22	56	.0019	1.94	64	.0022	2.22	56	.0019	1.94	60	.0021	2.08	750	.0260	26.04
From 40 to 50 years	38	.0017	1.73	60	.0027	2.73	50	.0023	2.27	70	.0032	3.18	44	.0020	2.	52	.0023	2.36	675	.0307	30.70
From 50 to 60 years	48	.0039	3.90	57	.0046	4.64	29	.0024	2.36	29	.0024	2.36	40	.0032	3.26	49	.0040	3.99	539	.0431	43.10
From 60 to 70 years	30	.0056	5.58	38	.0070	7.07	28	.0052	5.21	34	.0063	6.32	27	.0050	5.02	42	.0078	7.81	365	.0679	68.90
From 70 to 80 years	9	.0053	5.26	16	.0093	9.35	12	.0070	7.01	14	.0081	8.12	15	.0087	8.76	16	.0093	9.35	220	.1285	128.50
From 80 to 90 years	7	.0175	17.50	2	.0050	5.02	3	.0075	7.49	4	.0100	10.04	5	.0125	12.51	8	.0200	20.08	62	.1557	155.70
From 90 to 100 years	1	.0086	8.62	1	.0086	8.62	1	.0086	8.62	2	.0172	17.24	2	.0172	17.24	1	.0086	8.62	34	.2931	293.10
100 years and upwards	0	.....	.....	4	.1128	112.82	....	.....	.....	....	.....	.....	4	.1128	112.82	1	.0282	28.20	18	.4615	461.50
Unknown	15	.....	.....	26	.....	.....	16	.....	.....	19	.....	.....	15	.....	.....	18	.....		219	.....	.....
Totals	483			569			425			532			439			473			6122	.03198	31.98

*TABLE III.—Comparative Statement of Deaths from the Principal Diseases in the City of New Orleans, during the six years—*1867 *to* 1872*—inclusive.*

DISEASES.	1867	1868	1869	1870	1871	1872
Albuminuria	9	10	17	25	27	7
Apoplexy	91	72	85	124	102	85
Bronchitis	84	71	81	89	62	99
Bright's Disease	9	74	18	17	22	47
Consumption	671	632	684	757	780	784
Cancers	63	79	90	101	90	89
Cholera, infantum	100	85	56	65	84	52
Congestion of the brain	160	91	108	99	141	186
Delirium tremens	23	22	13	22	18	23
Diphtheria	31	16	19	19	14	39
Fever, billious	45	29	12	35	25	22
Fever, congestive	533	207	228	241	163	165
Fever, nervous	13	17	5	4	2	1
Fever, intermittent	51	30	32	27	26	27
Fever, remittent	110	36	36	51	39	26
Fever, puerperal	11	9	20	19	14	10
Fever, scarlet	24	14	13	44	5	3
Fever, typhoid	119	68	63	80	71	67
Fever, typhus	23	5	5	13	4	4
Fever, yellow	3107	3	3	587	54	39
Heart disease	121	100	171	249	190	169
Lockjaw	128	104	134	119	79	73
Tris nascentium	246	159	136	186	234	228
Measles	2	1	217	23	12	76
Pneumonia	285	235	323	320	271	317
Premature birth	52	63	113	110	52	64
Small pox	40	14	137	528	2	29
Softening of brain	23	25	33	31	28	33
Sunstroke	6	1	4	6	8	7
Stillborn	510	505	408	449	464	466
Syphilis	12	9	9	35	20	19
Teething	107	56	63	78	88	90
Gunshot wounds	3	34	25	15	26	26
Total deaths, less stillborn	9586	4838	5593	6943	5595	6122

TABLE IV.—Showing the populatien of the City of New Orleans, by age and sex, and color.—Extract from U. S. Census Report for 1870.

AGES.	WHITE.		COLORED.		TOTAL.
	Male.	Female.	Male.	Female.	
Under 1 year	1942	1934	619	640	5,135
1 to 2 years	1603	1505	542	533	4,183
2 to 3 years	2060	2037	555	631	5,283
3 to 4 years	2030	2031	610	636	5,307
4 to 5 years	1895	1820	529	561	4,796
5 to 10 years	8510	8245	2057	2301	21,112
10 to 15 years	8299	8964	2237	2650	22,150
15 to 18 years	3790	4778	1047	1717	11,332
18 to 20 years	2105	3054	663	1276	7,098
20 to 21 years	1086	1692	371	916	4,065
21 to 25 years	4228	5225	1705	2517	13,675
25 to 30 years	5313	6178	2039	3062	16,592
30 to 35 years	5189	5651	1506	2277	14,623
35 to 40 years	5172	5272	1554	2170	14,168
40 to 45 years	4390	4473	1478	1797	12,138
45 to 50 years	4106	3094	1228	1394	9,822
50 to 55 years	3092	2554	1048	1358	8,052
55 to 60 years	1581	1268	607	756	4,212
60 to 65 years	1223	1235	547	714	3,719
65 to 70 years	497	557	263	336	1,653
70 to 75 years	317	406	195	288	1,206
75 to 80 years	137	151	98	113	505
80 to 90 years	55	138	92	113	398
90 to 100 years	8	27	31	50	116
100 years and upwards	2	5	11	21	39
Civilized Indians			2	13	16
Chinese			23		23
Total Population	68,632	79,293	21,623	28,833	191,379
Chinese	------	------	------	------	23
Civilized Indians	------	------	------	------	16
Grand Total	------	------	------	------	191,418

The public may be assured that the foregoing Mortuary Report is full and correct, the Board having facilities for ascertaining the actual death rate in the city, as well as the actual number of interments made.

It will be seen by the foregoing table that the whole number of interments was six thousand one hundred and twenty-two (6,122), exclusive of still-born children.

The total number of still-born children reported during the year was four hundred and sixty-six (466).

Taking the U. S. census of 1870, which gives the city of New Orleans a population of 191,418 inhabitants, as a basis, we have a death-rate for the city of 31.98 to every 1000 of population.

This census is thought by many to be less than the actual population; the population being generally estimated at 200,000. The "House to House Inpection," by the Sanitary Inpectors, for the year 1872, shows a population of 196,691. This inspection does not include that portion of the city lying back of Broad street.

Estimating the population of the city at 200,000 inhabitants, would show a death-rate of 30.61 to every 1000 of population.

Of the 1,772 decedents under two years of age, 1,077 were white, and 695 colored.

Table I, shows the total number of deaths of this class, with the population and per centage of deaths monthly.

As has been stated, the total population of the city is estimated at 200,000. Of these 50,456 are colored persons. The number of deaths of this class in the year 1872, was 2,143, which is more than one-third of the total mortality; while the total number of this class is but about one-fourth of the total population of the city.

The number of deaths "not stated" is still unnecessarily large. This could be obviated, were the Registry of Births and Deaths connected with and under the supervision of the Board of Health, where it properly belongs; the Board would then have the supervision of every death certificate before being presented at the cemetery, and if not found to contain all the particulars requisite, it would be returned to the physician for

revision; the Mortuary Reports could then be compiled from the records of Vital Statistics, and would be more complete than can possibly be made by their compilation from the Sexton's reports of interments.

Many explanatory remarks made by attending physicians on death certificates, valuable to Vital Statistics, are omitted by Sextons of Cemeteries, in making their reports, for want of space, which also detracts from the completeness of the mortuary record.

Owing to the unnecessary alarm caused by publication of deaths by "pernicious" fever, more especially during the summer months, this term has been stricken from the nomenclature of diseases, in compiling the Mortuary Report of 1872, and deaths so reported have been classed as "congestive fever."

Respectfully submitted,

S. C. RUSSELL, M. D.,

Secretary of the Board of Health, State of Louisiana.

FATAL

G JUN

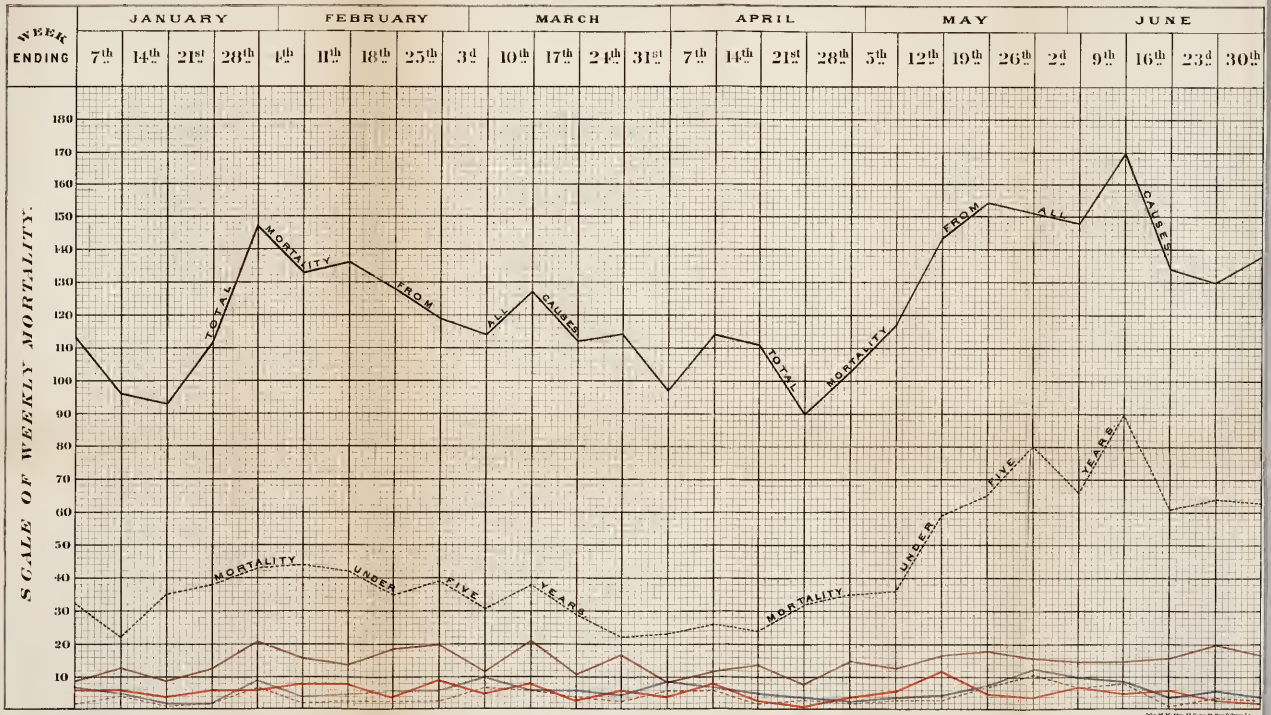
APRIL

14th	21s

CHART

Illustrating the Course of the TOTAL MORTALITY and the CHIEF FATAL DISEASES in the City of New Orleans,

DURING THE SIX MONTHS ENDING JUNE 30TH 1872.

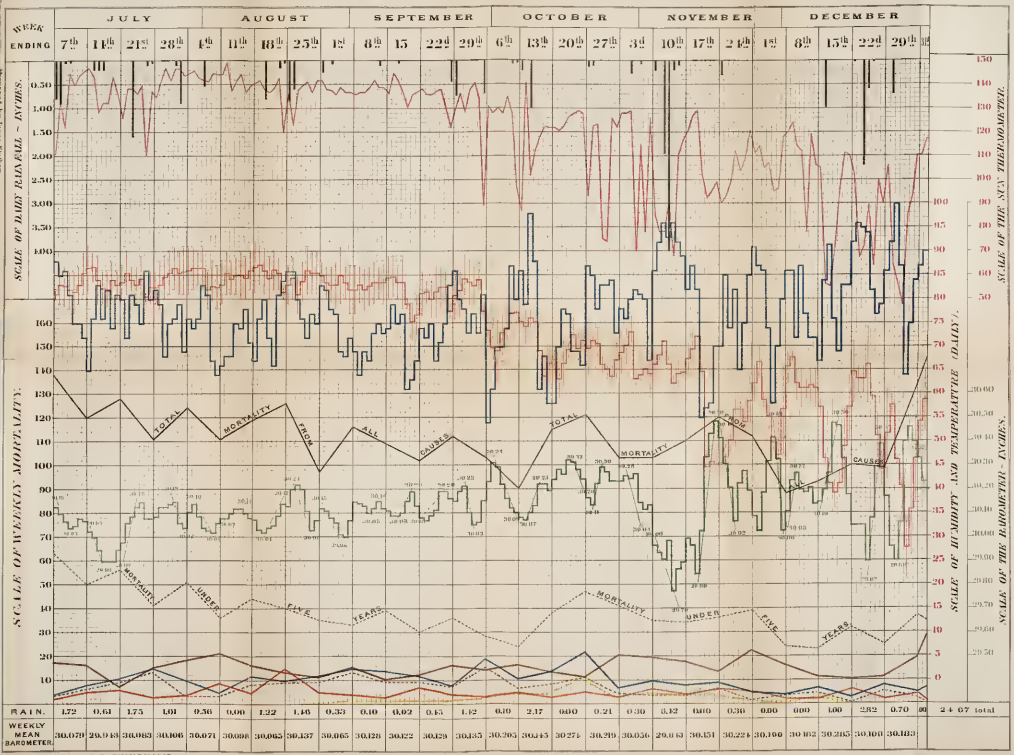


CHART

Illustrating the Course of the TOTAL MORTALITY and the CHIEF FATAL DISEASES in the City of New Orleans.

DURING THE SIX MONTHS ENDING DEC'R. 31st 1872.

(With Meteorological Observations for the same period.)



Prepared by Isaac Stearns.

The irregular red line at top of chart shows the daily maximum of solar heat received by the black bulb Thermometer.
The irregular red line in centre of chart shows the daily mean temperature
The red curves at the end of Perpendicular Bars show the daily range of Temperature

The irregular blue line shows the chief shown degree of moisture (including daily Condensation Dew)
The green vertical red of Perpendicular Bars show the quotient range of the Barometer during the week
The irregular green line shows daily mean Barometer

REPORT OF THE TREASURER,

S. C. RUSSELL, M. D.

OFFICE OF THE BOARD OF HEALTH,
New Orleans, La., December 31, 1872.

To the Members of the Board of Health :

GENTLEMEN.—The following is a detailed report of all moneys received and disbursed at this office for the year 1872.

The receipts were :

From the Mississippi station	$18,803 50
From the Atchafalaya station	1,950 00
From the Rigolets station	817 65
From sale of State warrants	2,910 00
From other sources	1,060 81
Total amount received	$25,614 96

The total amount of receipts at the Mississippi quarantine station during the year 1872 was four thousand eight hundred dollars less than for the year 1871.

This, with the low market value of State warrants, unexpectedly brings the Board in debt to the amount of five thousand three hundred and sixty-two dollars.

This indebtedness is for scientific instruments, salaries (unpaid), supplies for Mississippi station, printing, stationery, etc., court fees, boat for quarantine station, etc.

Should a like deficiency in the receipts at the quarantine stations occur in the year 1873, which is probable, the Board will need an appropriation from the State Legislature of twelve thousand (12,000) dollars.

Were the Registry of Births, Marriages and Deaths transferred to the Board of Health, with the present fees charged, it would not be under the necessity of calling upon the State for relief.

Treasurer of the Board of Health, in account with the State of Louisiana.

DR.

To cash on hand January 1st, 1872....$	291 86	
To Quarantine drafts on hand January 1st, 1872 (uncollected).....	308 95—	600 81
To cash received from fees on vessels *via* the Mississippi station, as per rolls	18,883 50	
To cash received from hospital charged on the bark "Queen of Hearts," *via* the Mississippi station.....	20 00—	18,903 50
To cash received from fees on vessels *via* the Atchafalaya station, as per rolls	1,950 00—	1,950 00
To cash received from fees on vessels *via* the Rigolets station, as per rolls	768 25	
To cash received from fees on vessels *via* the Rigolets station, collected at the Basins.....	49 40—	817 65
To cash received from sale of two State warrants, ($1000 each,) appropriation by Legislature of 1872, sold at 35 per cent. discount.....	1,300 00	
To cash received from sale of one State warrant, ($500,) appropriation by Legislature of 1872, sold at 48 per cent. discount.....	260 00	
To cash received from sale ot three State warrants, ($1000 each,) appropriation by Legislature of 1872, sold at 55 per cent. discount.....	1,350 00—	2,910 00

To cash hired to meet current expenses of the Board	$ 450 00—	450 00
To cash received from fine collected	10 00—	10 00
Total amount received		$25,641 96

CR.

BY MISSISSIPPI STATION.

Paid salary of resident physician from January 1st to December 31st, 1872, at $5000 per annum	$ 5,000 00	
Paid salary of assistant physician from January 1st to December 31st, 1872, at $2000 per annum	2,000 00	
Paid wages of employees at station, from January 1st to December 31st, 1872	3,514 15	
Paid for groceries and provisions for station during the year	970 27	
Paid for fuel for station during the year	243 12	
Paid for coal oil for station during the year	46 04	
Paid for repairs and improvements for station during the year	193 13	
Paid freight on supplies and fuel to station	118 50	
Paid B. Fasterling, sundries suppplied to station during the year	45 60	
Paid C. Duhamel, one spy-glass for station	25 00	
Paid for drugs and medicines during the year	8 10	
Paid subscription to city papers for station	13 00	
Paid resident physicians' bills for sundry expenses at the station	218 43	
By fees on schooner William A. Merrill, not collected	7 50—	12,402 84

BY ATCHAFALAYA STATION.

Paid salary of resident physician at station from May 1st to October 31st, $150 per month.....$	900 00	
Paid wages of boatman at station.....	80 00	
Paid postage for station.....	1 00—	981 00

BY RIGOLETS STATION.

Paid on account of salary of resident physician at station, from August 1st to October 5th, 1872, at $10 per diem.....	318 70	
Paid wages of employees at station, from August 1st to October 5th, 1872, in full.....	432 80	
Paid services of collector at Old and New Basins, for the month of August, 1872.....	60 00	
Paid sheriff's fees for seizure of vessels in 1869 and 1870	46 00	
Paid for transportation of men and supplies to and from station.....	14 60	
Paid for drugs and medicines for station	7 30	
Paid for lamps, oils, etc., for station ..	5 40	
Paid for bunting for station.....	5 00	
Paid for telegrams from station..	3 80	
Paid for one clay furnace for station...	1 75—	895 35

BY GENERAL EXPENSES.

Office Expenses.

Paid on account of salary of President of the Board, from January 1st to August 31st, 1872, at $2,000 per annum.....	1,333 28	
Paid on account of salary of Secretary and Treasurer of the Board, from January 1st to October 31st, at $2,000 per annum.....	1,666 60	

Paid salary of Clerk, from January 1st to December 31st, 1872, at $1,500 per annum	$ 1,500 00
Paid rent of Board Rooms, from January 1st to December 31st, at $900 per annum	900 00
Paid on account of salary of Attorney, from January 1st to April 30th, at $600 per annum	200 00
Paid wages of porteress from January 1st to December 31st, 1872	240 00
Paid wages of messenger from January 1st to December 31st, 1872	144 00
Paid for scientific books for Library of the Board	135 66
Paid for one walnut book-case for the Board	50 00
Paid for office furniture	24 35
Paid for 750 copies of map of oscillations of the river and lake, for Annual Report of 1871	35 00
Paid for one U. S. flag for office	25 00
Paid for one flag-staff	15 00
Paid rent of safe in vault of La. Savings Bank, one year ending December 10th, 1873	30 00
Paid subscriptions to scientific journals and papers during the year	30 50
Paid subscriptions to city papers during the year	27 00
Paid insurance on scientific instruments and library, etc., for one year	21 50
Paid Z. D. Wessely, New York, one barrel zinc iron disinfectant	14 72
Paid for fuel for office	10 50
Paid for ice for office	12 00
Paid water rate for one year, ending October 1st, 1873	10 00

Paid for one copy City Directory.....$	5 00	
Paid cab hire, inspecting drainage canals	5 00	
Paid for emptying vault.....	4 00	
Paid P. O. box rent for one year.....	8 70	
Paid Dr. Martin, Boston, vaccine furnished Board.....	36 00	
Paid interest on sums hired during the year.....	69 51	
Paid incidental expenses, int. rev. and postage stamps, telegrams, etc., during the year as per Petty Cash Book..... ...	135 55—	6,688 67

Paid J. W. Madden for printing, blank books, stationery, blanks, etc., for office, Sanitary Inspectors offices, Quarantine Stations, etc., from October 1st, 1871, to April 10th, 1872, as follows:

Printing 1000 copies Annual Report of 1871.....	600 00
Lithographing 1000 copies of Mortuary Chart for Annual Report of 1871...	375 00
Printing and binding inspection books for the six Sanitary Inspectors' offices.....	60 00
Printing and ruling blanks for general inspection of premises.....	62 50
Printing communication on streets and street gutters.....	60 00
Printing communication on drainage and drainage canals.....	50 00
Printing blank report of house to house inspection of premises.....	25 00
Printing mortuary report blanks.....	45 00
For seven Clayton's Diaries for office and six Sanitary Inspectors' offices,	21 00
Printing blank permits, notices, sanitary ordinances, etc	35 00

For stationery, etc., furnished office, Sanitary Inspectors' offices, etc.... $	105 00—	1,438 50

BY LABORATORY.

Paid New Orleans Gas Light Company, gas furnished laboratory during the year..... $	144 00	
Paid for chemicals, etc., for laboratory during the year.....	46 55	
Paid for chemical instruments and freight on same from New York...	44 92	
Paid for fixtures of laboratory.....	16 10	
Paid sundry expenses during the year.	19 00	
Paid car fare of Sanitary Officer, collecting gas in different parts of the city for analysis	5 00—$	275 57

BY SANITARY INSPECTOR'S OFFICES.

First District.

Paid rent of Sanitary Inspector's office,	60 00
Paid car fare of Sanitary Police, serving notices, etc., and sundry expenses at the office.....	49 10
Paid for fuel for the office.....	5 25

Second District.

Paid rent of Sanitary Inspector's office,	40 00
Paid car fare of the Sanitary Police, serving notices, etc., and sundry expenses at office.....	18 35
Paid for fuel for the office.....	5 00
Paid for pans for disinfecting infected premises.....	4 60

Third District.

Paid rent of Sanitary Inspector's office,	42 50
Paid car fare of Sanitary Police, and sundry expenses at office.....	8 25

Fourth District.

Paid rent of Sanitary Inspector's office,	40 00

Paid services of E. Mumford for compiling Annual Report of the Fourth District for the year 1871	$ 40 00	
Paid car fare of Sanitary Police and sundry expenses at office	5 65	
Fifth District.		
Paid rent of Sanitary Inspector's office,	30 00	
Paid car fare and ferriage of Sanitary Officer, between Algiers and Gretna, during the year	15 00—$	363 70
Paid sums hired during the year 1871, unpaid January 1st, 1872	1,163 50	
Paid A. W. Smyth, on account of sum advanced by him to R. & J. Beck, of London, for microscope and other scientific instruments	200 00	
Paid court costs, Board vs. sundry persons	247 55—$	1,611 05
Total amount expended		$24,656 68
By Quarantine dratts on hand, uncollected	446 45	
By cash on hand	538 83—$	985 28
		$25,641 96

S. C. RUSSELL, M. D.,
Treasurer of Board of Health, State of Louisiana.

We have this day examined the books, vouchers and papers of the Board of Health, for the year ending December 31, 1871, and have found the same correct in every detail.

CHARLES HILL,
TH. RATHENBILDER,
State Inspectors, under sec. 93, *Act No.* 42, *of* 1871.

APPROVED:
CHAS. CLINTON,
Auditor.

ORDINANCES OF THE BOARD OF HEALTH
OF THE STATE OF LOUISIANA,

IN FORCE ON THE 14TH DAY OF JUNE, A. D. 1872.

OFFICE BOARD OF HEALTH,
CITY OF NEW ORLEANS.

Preamble, adopted May 18, 1871.

WHEREAS, Under section six, of an act of the General Assembly of the State of Louisiana, entitled "An act to amend an act entitled 'an act to establish quarantine for the protection of the State,'" approved March 16, 1870, power is given to the Board of Health of the State of Louisiana, to pass and enforce by adequate fine, not to exceed in any case fifty dollars, sanitary ordinances for and within the city of New Orleans, and the parish of Orleans and Jefferson, on the right bank of the Mississippi river, which said ordinances shall be enforced in the name of said board by civil suit, in any court of competent jurisdiction.

Therefore, the said Board of Health have passed and adopted the following sanitary ordinances, for and within the said territory.

ANIMALS.

HOGS.

Ordinance, May 18, 1870.

SEC. 12. Any person who shall keep a hog or hogs within the pound limits of the city of New Orleans, or permit such hog or hogs to run at large, shall be subject to a fine not to exceed ten dollars, and the court, in rendering its judgment, shall at the same time order the offender to remove such hog or hogs beyond said pound limits within the next twenty-four hours;

and in default of such offender to obey said order, he shall be liable to a fine not to exceed ten dollars; and such fine shall be repeated until such hog or hogs are removed; provided, that this section shall not apply to the Fifth and Sixth Districts of the city of New Orleans, unless in cases where the removal of such hog or hogs is recommended by the respective sanitary inspector of those districts.

DISEASED ANIMALS.

Ordinance, May 18, 1870.

SEC. 13. All animals sick with any contagious, infectious or epidemological disease, shall be removed at once beyond the limits of the city of New Orleans, by the person or persons owning or having charge of such animals; and in default of such removal, such person or persons shall be liable to a fine not to exceed fifty dollars, and such animals shall be removed by the Board of Health, at the expense of such person or persons.

DEAD ANIMALS.

Ordinance, May 18, 1870.

SEC. 14. Whenever any horse, mule, cow or other animal shall die within the limits under the control of the Board of Health, it shall be the duty of the owner or keeper thereof to have it forthwith removed to properly located and authorized factories, to be disposed of for useful purposes, under proper regulations, or to bury such animal beyond the limits of the city of New Orleans, in a hole of sufficient depth, or to cast the same, or cause it to be cast, from the nuisance wharves into the river, at least a quarter of a mile below the lower limits of the city. And any person failing or neglecting to comply with the provisions of this section, or any part of them, within twelve hours after the death of such animal, shall be liable to a fine not to exceed thirty dollars.

Ordinance, May 18, 1870.

SEC. 15. Any person who shall hereafter cast or throw dead animals, carrion, ordure or other offensive or unhealthy matter into the river, except at the points designated by law, shall be liable to a fine not to exceed fifty dollars.

ARTICLES OF COMMERCE, OR BUSINESS PREJUDICIAL TO HEALTH.

Ordinance, May 18, 1870.

SEC. 16. Any person or persons who shall bring or cause to be brought into the limits of the city of New Orleans, any hides, bones, peltry, rags or other articles whatsoever, which may tend to produce infection, or in any way to injure or endanger health, shall be liable to a fine not to exceed fifty dollars; provided, that the Board of Health may issue permits for the introduction of hides, bones, peltry and rags, in cases in which they shall be satisfied that no noxious effects are to be feared from them.

Ordinance, May 18, 1870.

SEC. 17. Any person or persons who shall sell, or offer or expose for sale, in public or private, any blown, stale, decaying, putrid, rotten or unwholesome provisions, vegetables, fruits or tainted meats or fish, or any impure or unsound food, or any drink liable to be injurious to health, or the flesh of any animal that has died of disease or which was diseased when killed, shall be liable to a fine not to exceed fifty dollars.

Ordinance, May 18, 1870.

SEC. 18. Any person who shall adulterate or cause to be adulterated, in a manner liable to injure health, whether such article be intended for sale or otherwise, any substance intended for food, or any liquor intended for drink, or any drug or medicine, or shall offer for sale any such adulterated article, shall be liable to a fine not to exceed twenty dollars.

Ordinance, May 18, 1870.

SEC. 19. Any person who shall hold, keep or expose for sale any poisonous drug, medicine, preparation or substance, or shall give, prescribe or administer the same, except for lawful purposes and with proper motives, and by persons competent to give the directions and precautions as to the use thereof, or shall deliver or suffer, or cause to be delivered to any person any bottle, box, parcel or receptacle containing such article, unless the same is marked "poison," in large and legible letters, or under any circumstances, to any person who may be suspected, judged or presumed capable or desirous of using

such article for any illegal or improper purpose, shall be liable to a fine not to exceed twenty-five dollars for each offence.

Ordinance, May 18, 1870.

SEC. 20. Any distiller, brewer or keeper of any workshop, manufactory or laboratory, or warehouse-keeper or owner, or soap-boiler, chandler or any other person, who shall have, keep or use, or produce or store within the limits of the district under the control of the Board of Health, any foul, fetid, putrid, or offensive or injurious matters, substances, odors or vapors, liable to injure health, shall be liable to a fine not to exceed fifty dollars, and the said board shall, if it deem it necessary, and unless the evil complained of be at once abated, close all such places, and stop all such business, the continuance of which is liable to injure health.

Ordinance, May 18, 1870.

SEC. 21. Any person who shall sell, or expose or offer for sale any unwholesome, watered or adulterated milk, or milk known as swill milk, or milk from cows fed on swill, garbage or other unhealthful matters, or watered milk, or any butter or cheese made from any such milk, or any unwholesome butter or cheese, shall be liable to a fine not to exceed twenty dollars.

BUILDING LOTS.

Ordinance, May 18, 1870.

SEC. Any person who shall in part or wholly fill up any lot of ground with street scrapings, manure, offal or any foul or feculent matters, shall be liable to a fine not to exceed twenty-five dollars. And if, upon the order of court, such person does not forthwith remove such foul or feculent matters, he shall be liable to be fined again, and such fine shall be repeated until the evil complained of is wholly abated.

Ordinance, July 7, 1871.

SEC. 1. It shall be hereafter the duty of the sanitary inspectors, whenever within their respective districts, any building is being built, or is about to be built, to examine the lot of ground upon which such building is being built, or about to be built, to ascertain whether or not the level of such lot is below the level of the banquettes bordering upon or adjacent thereto,

and if they shall ascertain that the level of such lot is below the grade of the banquettes thereto adjacent, they shall report the condition of said lot to the Board of Health, and if it shall appear to the Board of Health that the dampness or defective drainage of such lot is such as to endanger the lives or health of persons who may thereafter occupy, lease or rent such premises, or persons living neighboring thereto, said Board shall issue such orders in the premises as to the filling up of said lot or the suitable drainage of the same as the said Board shall deem necessary, and the owner or owners of such lot shall be bound to obey such orders within the delay named therein, and in default thereof shall be liable to a fine of fifty dollars for each and every failure to do so.

Ordinance, June, 1872.

SEC. 1. Before any owner, contractor or other person shall erect any dwelling or building upon any lot of ground within the city of New Orleans, he shall obtain from the office of the Board of Health of the State of Louisiana a certificate showing that the level of such lot is not below the level of the banquettes adjacent thereto, or that such lot is provided with ample drainage facilities, so as not to be dangerous, from dampness or defective drainage, to life or health. Any owner, contractor or other person violating any portion of this ordinance shall be liable to a fine of fifty dollars.

CLEANLINESS OF STEETS, ETC.

Ordinance, May 18. 1870.

SECTION. 1. Any person who shall keep, throw or deposit any offal, filth, foul or offensive matter, corrupt or putrid water, or any shells, hay, straw, kitchen-stuff, paper, cloth, vegetable matter, or any substances of any kind that may be offensive to smell, or injurious to health, or liable to become so, in any yard, lot, space or building, sidewalk, gutter, drain or canal, or shall sufter or allow or permit the same to be done or to remain shall be liable to a fine not exceeding twenty dollars for each and every offense; provided, that ordinary refuse and sweepings from stores, dwelling houses and other tenements, and kitchen offal shall be deposited in tubs, boxes, barrels,

baskets, or other suitable receptacles, and be placed on the outside of the banquettes, convenient to be taken off by the offal carts: and that from the fifteenth of March to the fifteenth of October of each year, such deposits shall be made not earlier than three o'clock A. M., nor later than seven o'clock A. M., and from the sixteenth of October to the fourteenth of March, inclusive, such deposits shall be made not earler than three o'clock A. M., nor later than eight o'clock A. M., and the receptacles as above shall not be left on the banquettes after the hour of half past nine A. M. during the year; and the phrase "any person" shall be held to include not only the adjacent proprietor, resident, occupant, or person actually doing, or who has done any of the things named herein, but also any one whose duty it is by law or contract to remove, or cause to be removed or carried away, any such matters, substances or things as are herein set forth or intended.

Ordinance, May 18, 1870.

SEC. 2. No person shall impede or obstruct the passage or flow of water in any gutter, ditch, draining pipe or drain, or in any matter dam the same, under a penalty not exceeding ten dollars.

Ordinance, May 18, 1870.

SEC. 5. The Board of Health may remove or cause to be removed any decayed or decaying, or diseased vegetable matter, or other unhealthful or diseased matter, wherever the same may be, to such place or places as may by said Board be selected, at the expense of the owner of said matter or the occupant or owner of the premises where or adjacent to which the same may be.

Ordinance, May 18, 1870.

SEC. 6. All the slaughterhouses, dairies, stables, and other places in which animals are kept, whether for profit, pleasure, use, or any other purpose, shall be kept clean and wholesome by daily removal of all ordure, urine, manure, and any other offensive matter; any person liable for neglect under this section shall suffer a fine not exceeding fifteen dollars.

COMPLAINTS.

Ordinance, May 18, 1870.

SEC. 34. It shall be the duty of all good citizens to lodge complaints at the office of the Board of Health, or with the Sanitary Inspectors, or with the officers of the Sanitary Police, of any violations of this ordinance; and in order to facilitate such complaints, books of complaint shall be kept at the office of the Board of Health, and at the office of each Sanitary Inspector; and said books shall, at all times, be open for entering therein any such complaint or wrong.

CONTINUED OFFENSES.

SEC. 37. Whenever, under any of the sections of this ordinance, the offense complained of shall be of such a nature as to require any act or thing to be done, or not to be done, as the case may be, the court shall, at the same time it renders judgment, give the proper order to cause such act or thing to be done, or not to be done, as the case may be. And the person so ordered to do, or not to do, as the case may be, any such act or thing, shall, within the delay fixed by the court, obey such order or be liable to be fined again, till such order is fully and completely complied with.

DWELLING HOUSES.

Ordinance, August 12, 1870.

SEC. 1. The Board of Health shall, for proper cause for the protection of life and health, declare, in its discretion, any house, or dwelling, or place, uninhabitable, and shall forthwith order such house, dwelling or place to be vacated and closed, and such house, dwelling or place shall not be occupied again until it shall appear, by the action of such Board or its proper officers, that such houses, dwellings or places have been so renovated, cleansed or repaired, that the same may be used as a habitation without peril to life and health. Any person who shall neglect or refuse to obey, or shall disobey any order of the said Board, given by virtue of this section, or shall, in any way, violate this section, shall be liable to a fine not to exceed fifty dollars.

Ordinance, August 12, 1870.

SEC. 2. Whoever shall rent any dwelling or tenement house, shall provide that the same be amply supplied with hydrant water, or with a cistern or cisterns of a capacity of at least four hundred (400) gallons to each room of such dwelling or tenement house, under liability to a fine not to exceed fifty dollars.

Ordinance, August 12, 1870.

SEC. 3. Whenever, for the protection of life or health, the Board of Health shall deem any dwelling or tenement house or habitation to be overcrowded, and that thereby disease has been, or may be engendered, it shall, in its discretion, order such dwelling, tenement or habitation, to be in part vacated, so that the danger of the disease may be removed or arrested. And it shall be the duty of the owner of such dwelling, tenement or habitation, and of the lessee thereof to cause such order to be strictly obeyed; and for failure or refusal so to do such tenant or owner shall each be liable to a fine not to exceed fifty dollars.

INFECTIOUS OR CONTAGIOUS DISEASES, ETC.

Ordinance, May 18, 1870.

SEC. 24. The Board of Health shall remove to the hospital or other place of treatment, any person or persons suffering from small-pox, whenever such removal shall, in the discretion of said Board, be deemed necessary for the proper treatment of such person or persons, or for the prevention of the spread of said disease.

Ordinance, May 18, 1870.

SEC. 25. The Board of Health shall, at its discretion, prevent access to, or egress from, or cause to be vacated, any infected building, place or locality, and to fumigate, or otherwise disinfect any such building, place or locality, whenever, in the discretion of said Board, such action shall be deemed necessary to prevent the spread of said disease.

Ordinance, May 18, 1870.

SEC. 26. The Board of Health shall disinfect or destroy, by burning or otherwise, any infected clothing, bedding, or any

substance or material, whenever, in the discretion of said board, such action shall be deemed necessary to prevent the spread of disease.

Ordinance, May 18, 1870.

SEC. 27. Any person who shall remove, or assist in, or cause the removal of any person sick with any contagious, infectious, or other disease dangerous to public health, from the house or dwelling in which such person may be, shall be liable to a fine not to exceed twenty dollars, except written permission be first had from the Board of Health or its proper officers.

Ordinance, July 14, 1871.

SEC. 1. Whenever, within the discretion of the President of the Board of Health, it shall be deemed necessary for the protection of the general health of the community to remove any person affected with any infectious, contagious or other disease, he shall give such order to the proper officer of said Board, or other person, designating such place of removal, and he shall likewise issue such order for vacating, fumigating or disinfecting any house, building, place or premises from which such removal has been made, or where such disease has been, or other premises, as by him may be deemed necessary; and if any person or persons shall offer any obstruction to, and refuse to allow such removal, vacation, fumigation or disinfection to be made, such person or persons shall be liable to a fine not exceeding the sum of fifty dollars.

Ordinance, May 18, 1870.

SEC. 28. All practitioners of medicine, masters of any water craft, hotel, boarding or lodging house keepers, principals or masters of any boarding school or seminary, the chief officers or persons in charge of any public institution of charity or asylum, or otherwise, are hereby required to report, within twenty-four hours, to the office of the Board of Health, all cases within their cognizance of Asiatic cholera, yellow fever, typhus or ship fever, malignant scarlet fever, small-pox, varioloid, trichiniasis, or any other case that may at any time be specified by the Board of Health, and in default or failure to so report such cases, such person so failing or in default shall be liable to a fine not to exceed fifty dollars; provided, however, that said

Board may declare it unnecessary to report further cases, when any disease shall have been pronounced epidemic.

Ordinance, May 18, 1870.

SEC. 29. No child shall be admitted as a pupil in any public school without a certificate from a practising physician, or proof of successful vaccination. The Board of Health will at all times provide the means for gratuitous vaccination at the office of either of the Sanitary Inspectors.

NUISANCES.

Ordinance, May 18, 1870.

SEC. 3. Any person who shall commit a nuisance in any public place or street, whereby the purity of the atmosphere may be, or liable to be affected, shall be liable to a fine of not less than five dollars for each offense.

Ordinance, August 17, 1870.

SEC. 1. Whenever, in the opinion of the Board of Health, there exists any nuisance, the continuance of which shall endanger life or health, the said Board shall, through its proper officers, notify the owner or tenant of the premises where such nuisance exists, or the persons responsible for the existence of such nuisance, to abate the same forthwith; and for any failure or neglect to obey any such order of said Board, the person so failing or neglecting shall be subject to a fine of not to exceed fifty dollars ($50); and the court shall, at the time of ordering judgment, also render judgment ordering the defendant to obey such order of the Board of Health within a reasonable time, to be fixed by the court; and if the defendant fail or neglect to obey such order, within the delay fixed by the Court, he shall be deemed to be guilty of a new offense, and be again liable to the herein before named penalty.

NUISANCE CARTS.

Ordinance, May 18, 1870.

SEC. 4. The Board of Health shall prevent, at any time, the dumping or depositing of offal or offensive matter by the offal carts, or carts employed to remove such offal and offensive matter by persons contracting to clean the public streets, in any place, when and where the said Board or its proper officers,

shall deem such dumping or depositing detrimental, or liable to become detrimental to health; and said contractors and other persons shall be bound to obey all orders, under this section, issuing from the Board of Health, under a penalty not to exceed twenty-five dollars for each offense.

Ordinance, May 18, 1870.

SEC. 10. Contractors for cleaning public streets and places shall remove all matters and substances deposited in boxes, etc., as provided under section one of this ordinance, at or before the hour named in their contract with the city, and for any neglect so to do, shall be liable to a fine not to exceed twenty-five dollars for each offense.

Ordinance, May 18, 1870.

SEC. 11. Any person who shall convey through any street or public highway, or any suburb, by means of any conveyance whatever, or in any manner any ordure, excrement or other foul or offensive matters, except between the hours of 11 P. M. and 4 A. M., shall be liable to a penalty not to exceed fifty dollars. All carts and vessels for the removal of such ordure, excrement, foul or offensive matters, shall be water-tight, and shall be thoroughly washed and disinfected by such means and such manner as the Board of Health shall direct, immediately after being emptied, and at the point where such carts or vessels shall have discharged their contents. Any person failing so to do, shall be liable to a fine not to exceed twenty-five dollars.

Ordinance, June 14, 1870.

SEC. 1. Every vidangeur, or other person, engaged in the business of a vidangeur, shall have attached to each of his carts or wagons used in such business, a lighted lantern or lamp, on which shall be painted in distinct figures, at least two inches high, the number of said wagon or cart, and for failure or neglect so to do shall be liable for each offence to a fine not exceeding twenty-five dollars.

OBSTRUCTING EXECUTION OF ORDINANCES.

Ordinance, May 18, 1870.

SEC. 35. Any person willfully obstructing, hindering or

resisting any officer or person, authorized by the Board o Health, to enter into or upon premises for the purpose of examining the same, shall be liable to a fine not to exceed fifty dollars.

Ordinance, May 18, 1870.

SEC. 36. Any person willfully obstructing, hindering or resisting any officer or person authorized by the Board of Health, in the execution or enforcement of any sanitary ordinance, or order of said Board, shall be deemed equally offending, and be subject to the same penalty as if he were the real offender.

PRIVIES.

Orrdinance, May 18, 1870.

SEC. 8. Any privy hereafter constructed shall be not to exceed two feet below the surface of the ground, and be walled with brick or stone, laid in cement its whole depth, with wafer-tight bottom, and said wall shall be raised at least one foot above the surface of the ground, and shall be so constructed as not to have any issue or opening on any street, way, yard or place, nor shall it be within three feet of any street or way, and shall, if built adjacent to any wall, whether a party wall or otherwise, be separated therefrom by solid masonry of not less than two feet in thickness, laid in cement, and thoroughly water-proof, and shall have a flue or ventilator, sufficient for ventilation, extending above the surrounding windows, or communicating with a chimney. Any person building or causing any privy to be built in contravention of this section, or any part of it, shall be liable to a fine not to exceed twenty dollars. And the court before which suit may be brought for violation of this section, or any part of it, shall, in rendering its judgment, order such privy to be reconstructed in accordance with the provisions of this section, within a reasonable time, and, in default of such compliance with such order, the party so failing to comply shall be subject to like penalty and punished as in the first instance; and the Board of Health may cause such order to be complied with at the expense of the person ordered as aforesaid; said expense to be recovered in any court of competent jurisdiction at the suit of said Board.

Ordinance, May 18, 1870.

SEC. 9. Whenever any privy shall be filled to within one foot of the surface of said vault, or whenever the Board of Health shall, through its proper officers so order, such privy shall be emptied by the owner or tenant of the premises, within forty-eight hours; and the emptying of such vault, or of any vault, shall take place between the hours of eleven o'clock P. M., and four o'clock A. M., and at least twenty-four hours before the removal of the contents of any vault, it shall be thoroughly deodorized with copperas, carbolic acid or some other agent, as directed by the Board of Health. Any violation of this section or part thereof, shall subject the offender, whether owner or tenant or person making such removal, to a fine not exceeding twenty-five dollars.

Ordinance, June 14, 1870.

SEC. 1. Whenever, in the opinion of the proper officer or officers, of the Board of Health of the State of Louisiana, any privy or privy vault shall be in a condition such as to require the same to be disinfected or deodorized, he or they shall cause notice thereof to be given to the owner or tenant of the premises, where such privy or privy vault may be, to deodorize or disinfect such privy or privy vault within a delay of thirty-six hours, and for any refusal or neglect to obey such notice, within said time, such offender shall be liable to a fine not exceeding the sum of ten dollars.

TOMBS, GRAVES OR VAULTS, AND REMOVALS OF DEAD BODIES.

Ordinance, June 14, 1872.

SEC. 1. No tomb, grave or vault, containing any dead body, shall be opened without permission first had from the proper officers of the Board of Health, in writing. Any person violating this ordinance shall be liable to a fine of not to exceed fifty dollars.

Ordinance, May 18, 1870, amended June 14, 1872.

SEC. 23. Any person who shall disinter or disentomb any human body or the remains thereof, within the district under the control of the Board of Health, without authority first had

from the proper officers of said Board, or shall remove beyond the limits of said district, or introduce therein or inter any human body or the remains thereof, without leave first had from the proper officers of said Board, shall be liable to a fine not to exceed fifty dollars.

SEXTONS.

Ordinance, May 18, 1870, amended June 14, 1872.

SEC. 31. Every sexton or other person having the care or charge of any cemetery, graveyard or burying ground, shall, on Monday of each week, before the hour of 9 A. M., make a written report and hand the same into the office of the Board of Health, which said report shall contain the full name of each and every person buried or entombed in such cemetery, yard or ground, during the seven days next preceding six o'clock P. M. of the last Sunday before making such report, together with a statement of the color, sex, age, nativity, the cause of death of such person, occupation, place of death, condition, birthplace of parents, and such other information as the board may from time to time require, and for failing to make such report within the time, or in the manner herein set forth, such sexton or other person shall be liable to a fine not to exeed twenty-five dollars.

TOLLING OF BELLS.

Ordinance, May 18, 1870.

SEC. 30. No bell shall be rung or tolled at any funeral without a permit therefor obtained from the Board of Health; nor shall any such bell be tolled at any time to the prejudice or peril of the life or health of any human being. Any violation of this section will render the offender liable to a fine not to exceed twenty dollars.

THEATRES, ETC.

Ordinance, May 18, 1870.

SEC. 33. Any person or persons, being the lessee, manager, conductor or owner of any theatre or any place where any play, concert, opera, circus, exhibition, dance, ball, lecture is had, or

place of amusement, who shall cause or permit, or allow the same, or any part thereof, to be so far overcrowded or inadequate, faulty or insufficient in respect of strength, ingress or egress, cleanliness or ventilation, as that thereby any needless peril to life, limb or health shall come or happen, or be incurred or suffered by any person properly at or in any such place, shall be liable to a fine not to exceed fifty dollars.

COMMUNICATION

ON

CONSTRUCTION AND MANAGEMENT

OF

STREETS, STREET GUTTERS,

AND

DRAINAGE CANALS.

BY

G. W. R. BAYLEY, Esq., Civil Engineer.

BOARD OF HEALTH,

MARCH, 1872.

OFFICE BOARD OF HEALTH,
STATE OF LOUISIANA.

New Orleans, March 23d, 1872.

G. W. R. BAYLEY, ESQ., C. E., *New Orleans, La.*

SIR:—I have the honor to forward you a copy of the Report of the Board of Health for the year 1871.

I respectfully invite your attention to that portion of the report discussing the subject of

Management of Streets.

Construction of Gutters of Streets parallel to the river.

Management of Street Gutters.

The Location of certain Drainage Canals.

The disposal of sewage and rainfall separately, and the relief from foul and unhealthy odors, proposed to be secured by a proper mode of removal of sewage, and subsequent flushing with pure water.

In connection with this discussion, I invite your attention to the reports of Dr. Perry, to be found on pages 118 and 122.

If you deem the principles laid down to be sound, and the plans suggested judicious, you will confer a public benefit by expressing your professional opinion on the subject.

As to the great value of flushing ditches and canals, you have already expressed a decided opinion, but a restatement of your views in connection with the other topics mentioned, will be advantageous.

Your full acquaintance with the principles involved, your experience acquired whilst connected with the City Surveyor's department, and your distinguished ability and reputation as Civil Engineer, will give great weight to what you may say on this subject, and is the excuse which I offer on behalf of the Board of Health for addressing this request to you.

I have the honor to be, Sir,

Very respectfully,

Your obedient servant,

C. B. WHITE, M. D.,

President Board of Health, State of Louisiana.

NEW ORLEANS, MOBILE & TEXAS R. R.
(ENGINEER'S OFFICE.)

NEW ORLEANS, March 30th, 1872.

C. B. WHITE, M. D., *Presidemt*
Board of Health, State of Louisiana.

DEAR SIR—Your communication of the 23d inst., requesting a statement of my "professional opinions" respecting certain recommendations contained in the "Annual Report of the Board of Health" for 1871, is received.

With doubt whether my "opinions" will be of any value in aiding you to accomplish the improvements recommended in in your reports, I yet do not feel justified in witholding them.

I have read your interesting and valuable report with attention, and I am free to say that I fully concur with the views therein expressed, respecting the "Management of Streets"; "Construction of Gutters of streets parallel to the river"; "Management of Street Gutters"; "The Location of certain Drainage Canals"; The Disposal of Sewage and Rainfall separately"; and the plan of "Relief from Foul and Unhealthy Odors"; by *Flushing* the Gutters and Canals with Pure Water.

Your advice that during the summer months "the facilities for removing offal from residences should be increased," and that this class of substances should be removed "at an early hour, every day, from the streets"; that the "street scrapings should be immediately removed," from the unpaved, as well as from the paved streets; that where the waterworks do not supply water, the gutters, during the summer, should be "flushed" from the river, by means of steam pumps, such as the one on the "Tyler," once a day; that on streets where hydrants exist, these should be used daily to wash the gutters, etc.

All of the above recommendations are excellent, and should be carried out. If they were, with regularity and system and thoroughly, the public health would be very much improved, beyond question.

You are correct also when you say that "the best condition for the gutters running from the river towards the swamp, is a continued stream of water, and for gutters of streets parallel with the river, absolute dryness." The gutters in streets parallel to the river should be, as you say, higher and shallower than those in streets perpendicular to the river, and these should be so constructed that water and sewage could not be backed up into them from the gutters of streets at right angles to the river. The construction of our street gutters should, undoubtedly, be changed, to prevent this evil, which now exists everywhere. If this cannot be done, because of its cost, in the old paved streets, at least all new streets, when paved, should have their gutters constructed as you suggest. The reasons for it are manifest.

As stated in your Annual Report, "where clean water is used for flushing offensive draining canals or sewers, the effect is wonderful. The water has not only the mechanical effect of removing decomposing matter, but the no less important one of destroying organic matter by the rapid combination with it of the oxygen which all water holds in solution, and which it has absorbed from the air; the motion of the water favors absorption of oxygen from the air, so that in a running stream containing sewage, the oxygen which is continually uniting with the organic matters present, is continually being replenished by the absorption of more oxygen from the air."

As is said elsewhere, "the natural plane on which New Orleans is built has sufficient inclination towards the lake to give a strong current to the water from the river as far as the draining machines."

What is needed therefore is, that the gutters of streets at right angles to the river, should gradually increase in size as they approach the draining machines, and that they should be, so far as possible, free from obstructions, and continuous to the draining canals in direct lines, to facilitate the uninterrupted flow of water through them.

With the gutters so constructed, and those in streets parallel to the river made higher, so that no stagnant pools would remain in them, the conditions for maintaining clean streets by

means of pure water from the river directly, or from hydrants, would be established. In no other way can our streets be kept in a cleanly condition.

I entirely agree with you that the so-called draining canal in Claiborne street, between Canal street and the Old Navigation Canal, which is really but a stagnant pool, reeking with all manner of filth, and exhaling the foulest odors, should be filled up, and that the gutters of Customhouse, Bienville, Conti, St. Louis and Toulouse streets, should be carried across Claiborne street, and made continuous to the draining canal on Galvez street.

All of the gutters of streets perpendicular to the river, from the Old to the New Navigation Canals, should be arranged for drainage directly into Galvez Canal, which is now being enlarged and deepened to receive all. I think that this canal, in Galvez street, when enlarged and deepened, could be very much improved by planking its sides continuously, to prevent the accumlation of sewage substances in the inequalities of its margins, and to facilitate its being kept clean by flushing with water, from the New Navigation Canal. As you say, the present drainage ditch along the Old Navigation Canal, in Carondelet Walk, should be enlarged and deepened to carry the sewage from Galvez Canal to the Bienville draining machine.

This being done, all of the city sewage between the Navigation Canal should, by all means, be conveyed to the draining machine through the Carondelet Walk Canal, by a system of flushing, by means of large iron pipes to be laid from the New Navigation Canal into that end of Galvez Canal.

In this way, and only in this way, in my opinion, is it possible to keep Galvez Canal clean, and promptly remove all offensive sewage. So far as the removal of sewage is concerned, the shortest line to the draining machine, and *the best line*, is the one by the way of the Galvez and Carondelet Walk Canals.

If Galvez Canal is to be connected with Broad and Hagan Avenue Canals, by means of other Canals, next to the New Canal and in Poydras street, or elsewhere, these should be kept closed by means of gates (constructed for use for flushing when desired to clean them), which should be *only opened to*

permit the passage of rain water during heavy rains or storms, when Galvez Canal might be inadequate to pass off the water. By no means should the ordinary sewage be allowed to flow into these connecting canals, for it is plain enough that the less sewage surface exposed the better, when there is no current.

Galvez Canal can by means of flushing, be kept clean, and it will be large enough, as now being dug out, and perhaps unecessarily large, for the conveyance of sewage to the draining machine. Auxiliary canals may facilitate the rapid passage to the draining machine of rain-fall, during storms, but beyond that they would be worse than useless, if sewage is allowed to flow into them.

If the draining machine, located on Hagan Avenue, was of sufficient capacity, or powerful enough to throw out the water from Hagan Avenue canal as fast as it flowed into it, during rain storms, the canals leading to and into Hagan Avenue Canal, would not need to be so large as proposed, and the less sewage surface exposed to the air, in reservoirs, the better.

Time will not permit me to discuss the many and valuable suggestions, other than those noticed, in your report, but I will say that I find nothing in it to condemn, and everything to commend. In my opinion you are right everywhere, and if your recommendations were acted upon, and your advice followed, the health of our city would be much improved. I notice particularly your suggestions relative to the laying of 30-inch pipes from the river into the Old Basin. If you would add into the New Basin also, it would be still better.

All we have to do to purify our streets, gutters and canals, is to use freely the superabundance of pure water with which we are surrounded, in lake and river.

Permit me to suggest here that the level of low, or ordinary low water, in the Mississippi river, is nearly always higher than the water in the old and new Basins of the two navigation canals; therefore, if your iron pipes should be laid down during low water in the river, and be laid deep enough, it

would very seldom happen that the river would be too low for water to flow through them into the basins. It might happen, during storms which raise the lake, that water would flow into the river from the basins, but, this would be no objection; it is a steady current through the canals that is wanted. The differences in the height of water, due to tides, storms and high water in the river, would nearly always cause a flow of water through the pipes, if laid low enough.

With respect, yours truly,

G. W. R. BAYLEY,

Civil Engineer.

ANNUAL REPORT

OF THE

BOARD OF HEALTH,

TO THE

GENERAL ASSEMBLY OF LOUISIANA,

1873.

SESSION OF 1874.

NEW ORLEANS:

1874.

BOARD OF HEALTH.

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G. W. R. BAYLEY, Esq., C. E.
E. HEATH, Esq.
THOMAS J. WOODWARD, Esq.
Wm. M. BURWELL, Esq.*
A. W. SMYTH, M. D.
J. T. NEWMAN, M. D.
E. S. DREW, M. D.
JAMES F. FINNEY, M. D.
C. B. WHITE, M. D., President.

SECRETARY OF THE BOARD.

S. C. RUSSELL, M. D.

ATTORNEY OF THE BOARD.

C. S. RICE, Esq.

CHEMIST.

ALFRED W. PERRY, M. D.

CLERK.

ISAAC STATHEM.

*Appointed, vice John S. Walton, Esq.

RESIDENT PHYSICIANS
AT QUARANTINE STATIONS.

MISSISSIPPI STATION.

GEORGE HOWE, M. D.

ATCHAFALAYA STATION.

J. H. HANDY, M. D.

RIGOLETS STATION.

M. A. ROACH, M. D.

SANITARY INSPECTORS.

First District.....E. S. DREW, M. D.

Second District.....JULIUS S. CLARK, M. D.

Third District..... J. T. NEWMAN, M. D.

Fourth District..... ...ALFRED W PERRY, M. D.

Fifth District.....T. M. CHESTER, Esq.

Sixth District.....GEORGE KELLOGG, M. D.

MEMBERS OF THE METROPOLITAN POLICE

ON DUTY WITH THE BOARD OF HEALTH.

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L. G. PARKER,

JAMES E. MOORE.

Second District.

L. D. ALLEN,

J. H. CAMP,

F. R. WILLIAMS.

Third District.

J. SCHOTT,

H. KOHLHAASE.

Fourth District.

LOUIS BACKERS,

A. J. BARRETT.

Fifth District.

H. H. BANCROFT.

Sixth District.

P. BEAUMAN,

J. CHELLET.

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REPORT.

STATE OF LOUISIANA,

OFFICE OF THE BOARD OF HEALTH,
159 CANAL STREET,

NEW ORLEANS, December 31, 1873.

To His Excellency WM. P. KELLOGG,
Governor of the State of Louisiana:

GOVERNOR—The Board of Health respectfully submits its annual report:

The responsibilities and labors of the Board have been made greater and more serious than in some former years, by the presence and prevalence, within the past twelve months, of the three most universally dreaded and fatal diseases which afflict mankind, small-pox, cholera and yellow fever.

The question of the origin of these diseases, their course and results, and the question of prevention or sanitary management ot them, are of sufficient interest to demand a somewhat extended consideration.

The mortality caused by these diseases was, small-pox 505, cholera 241, yellow fever 226. The yearly death rate is 37.05 per thousand of living inhabitants—31.72 without these diseases. It will be observed that the increase of death rate by these diseases, is somewhat more than one-half due to small-pox, an almost entirely preventible disease.

Beside the labor and responsibility naturally connected with its duties, the Board has suffered greatly from financial embarrassment, owing to the permanent diminution of its receipts from the quarantine, and the insufficiency of the appropriation by the General Assembly. As will be seen in the report of the Secretary, the debts of the Board amount to about six thou-

sand two hundred dollars, twenty-five hundred of which is salary due its officers, the Attorney, Secretary and President of the Board. This want of funds has greatly embarrassed the Board in dealing with small-pox. Had house-to-house vaccination, by the employment of physicians, resident in their respective districts been promptly and thoroughly carried out, and proper hospital arrangements adopted, the prevalence of small-pox could doubtless have been avoided.

Not unfrequently cases occur in which it is desirable to move all inhabitants from an infected house, and to provide temporary quarters for the indigent, or to remove vessels and boats from an infected locality. These necessities, and others arising unexpectedly in spite of careful prevision, of course require command of funds and adequate powers. The health of the inhabitants of New Orleans being directly benefited by such expenses, the city treasury should properly bear them.

Addition should be made to existing laws, giving the Board of Health ample power in case of threatened epidemic, to take the necessary steps, and expend the necessary moneys to prevent such sickness. Sufficient illustration of the necessity of such legislation is found in the culpable neglect of the city authorities in reference to small-pox, and their action in reference to payment of bills for disinfectants used in the attempt to control yellow fever, full account of which will be found in the pages devoted to the consideration of these scourges.

The financial difficulties of the Board would be much, if not altogether relieved, by the transfer of the duties and fees of the registration of births, deaths and marriages in the parish of Orleans, to the office of the Board of Health.

In almost all cities, where Health Boards exist, such Board is the Registrar of vital statistics.

Placing the Board of Health in charge of this duty, is the only plan to secure accurate record, careful preservation, scientific analysis and use of these vital statistics. The reason is evident. The study of vital statistics is the foundation of the science of Hygiene, and these facts accumulated are only valuable, interesting, and fruitful of conclusions in the degree that they are truly recorded, faithfully preserved, scientifically analyzed and acted upon, and published. The sanitarian, by pro-

fession and experience, is the only proper custodian of these facts.

It is believed that scarcely one-third of the fees now received for registration would be required to furnish the necessary blanks, books and clerk hire to keep the records, and that the remaining two-thirds, or more, would very nearly, or quite, supply the annual deficiency of the revenue of the Board, hitherto met by annual appropriation of the General Assembly, and to that extent would lessen the burdens of taxpayers.

In connection with the very advantageous amendment of the health law just suggested, the Board expresses its opinion, formed from the opinions and practice of other similar bodies, and from its own experience, that the duration of the term of membership in this body should be very considerably increased. Terms of from three to six years, and their consecutive expiration, secure to a body, so composed, experience and continuity of idea and practice. Such a change of its organization is therefore recommended.

Beside difficulties arising from lack of means and sufficient amplitude of powers, the larger and more serious difficulty in affording to the community the benefits to be derived from the suggestions and labor of modern scientific hygiene, lies in the general want of information of our citizens as to the facts, principles and dictates of sanitary science.

The remedy is to provide qualifiied instructors in hygiene and physiology.

The Board recommend—

1st. The establishment and endowment of a Professorship of Hygiene in the University of Louisiana, to be independent of, and in addition to, that of Physiology. This action will secure to the young men of the medical profession proper knowledge of the subject as understood at the date of their studies, and a proper appreciation of preventive, as contrasted with curative medicine. Each physician will be to the community in which he practices his profession a source of information, a director of public sentiment, and an efficient supporter of all organizations and measures calculated to improve the public health, and prevent disease.

2d. The Board of Health recommends an amendment to the law relating to the public schools of the State, to the effect that from and after January 1st, 1875, no person shall be appointed a teacher in any of the schools of the State, who does not pass examination in practical physiology and hygiene, and exhibit a knowledge of those branches such as may be acquired from the work of Dr. Lankester of England, entitled Practical Physiology, a School Manual of Health, or works of equal grade; and that after January 1st, 1876, no teacher shall be allowed to hold such position in any of the schools, in any portion of the State, unless proved qualified in the subjects and to the degree mentioned.

Further, to secure information on these important subjects to all the people of the State, that it be made the duty of directors of public schools to introduce in all schools under their control, into all grades equal to that known in New Orleans as Grammar School B, some book equivalent to the one before named.

As large numbers of scholars, from necessity, leave the schools at an early age, and as the families to which they belong are usually those to whom knowledge of practical physiology and hygiene is most essential, it is desirable that the study of these subjects be introduced into the schools at the earliest practicable period in the child's educational career.

With great propriety the burden and responsibility of examining and recommending works on those subjects for use in the schools, might be thrown upon the State Board of Health.

In connection with the subject of the preservation of health and prevention of disease throughout the State, the Board of Health recommends the adoption of a general sanitary act, creating local Boards of Health in all the incorporated towns and cities of the State, with powers sufficiently ample to secure the enforcement of sanitary ordinances, the prompt abatement of all nuisances injurious to health, and to take immediate and thoroughly efficient action in case of threatened epidemic of yellow fever, cholera, small-pox, or other infectious disease.

It should be made the duty of all Boards of Health so created, to provide and maintain an ample supply of pure and fresh vaccine virus from November 1st to May 31st, and to furnish

gratuitous vaccination to all citizens through a competent medical health officer.

The same obligations in reference to vaccine and vaccination, should be laid upon the authorities of every parish in the State.

Not less than three hundred and fifty thousand of the inhabitants of this State are unvaccinated, and therefore liable to small-pox.

The evils consequent upon its prevalence, sickness, suffering, loss of life, loss of labor of the State, etc., require no recapitulation.

A complete registration of births, deaths and marriages throughout the State is very desirable. It may not be advisable to attempt any legislation on that point in the present unformed state of public sentiment, but ultimately such registration should be made, and the State Board of Health be constituted the State Registrar of vital statistics.

The propriety and value of such action has been considered in the remarks on registration in the parish of Orleans.

These local Boards of Health require long terms of office for their members, and their consecutive retirement, securing to such Boards experience, continuity of idea and of practice.

The necessity of Local Boards of Health, is made apparent by the recent experience of Shreveport as to yellow fever, and the present condition of many parishes of the State in regard to small-pox.

If epidemic threaten in any part of the State, it should be the duty (by law) of the State Board, in case of neglect or failure of local boards to act efficiently, to take charge of health matters in that locality; and so far as practicable, remedy the evils of such want of action.

OILS AND FLUIDS FROM PETROLEUM.

While considering matters relating to the lives and health of the people of the State at large, the Board renews its recommendation of the regulation of the sale of oils aud finids, derived from petroleum, by Legislative enactment.

Great losses of property, serious accidents, and the loss of many lives, result from the lack of suitable laws upon this subject.

The act recently passed, and now in force in Ohio, is brief and comprehensive, and will doubtless prove effectual.

Similar legislation in Louisiana, is an urgent public necessity.

BOARD OF PUBLIC WORKS FOR NEW ORLEANS.

The Board of Health suggested, a year since, the creation of a Board of Public Works of the City of New Orleans.

The exceeding importance of proper drainage and sewage to every one of its two hundred thousand inhabitants, the difficulties to be encountered and overcome, and enormous expense required to put the city into proper sanitary condition, demand that such operations should be planned and executed only after careful consideration, and under the supervision of a body, at least partly composed of skilled civil engineers. Such board should have, as one of its members, an experienced medical man, skilled in hygiene and sanitary laws, especially as modifying and affecting methods of sewerage and drainage.

During the past, and at the present time, every change of administration brings in new officers, new systems, change of ideas, and real or supposed novelties of practice.

A Board of Public Works, so constituted, that its membership changed infrequently and successively; that while all were skilled, it would always contain a majority of men having experience in their duty, and that traditional knowledge which attaches to long continuance in all positions; such a Board could, and would perfect a correct and complete system of sewerage, drainage, etc., which could be permanently adhered to. Then, despite changes of administrators and local officers, the general plan adopted would be carried forward, all work done, however little, would be in the right direction, not something soon to be undone, but a permanent improvement, bringing the city so much nearer comfort and health.

In all other large cities such Boards exist, and their practice is a safe example.

Therefore, deeming the proper and complete drainage of New Orleans of the highest sanitary importance, and believing that the death rate of the city would at once diminish one thousand per annum, were the city and its immediate vicinity drained and cleaned upon a proper scientific and sanitary system, the Board of Health strongly recommends the establishment of a permanent Board of Public Works for the city of New Orleans.

As having especial interest and value in this connection, attention is directed to the very able paper on the drainage and sewerage of New Orleans, read by G. W. R. Bayley, Esq., Civil Engineer, before the Board of Health, of which he is a member, and by its directions included in this report.

The city of Calcutta exhibits very remarkable sanitary results, effected by proper drainage, sewerage and water snpply.

The accompanying table (although interesting in other points) is introduced to show the decline in death rate, coincident with the introduction, progress and completion, of a general system of public works in that city.

The decrease of deaths is principally in the zymotic class of diseases.

The works of sewerage were begun about 1858, and were extended very largely, and brought to an approximate conclusion in the years 1869 and 1870.

The water supply was begun in 1866, and completed in 1869, under the administration of the same city officers; and in the years preceeding 1869, a complete and careful system of scavengering was carried into effect. With this period corresponds the great improvement of the health of Calcutta.

The following table exhibits in a striking manner these sanitary benefits received:

STATEMENT NO. III.—Return of Deaths in the Town of Calcutta in each of the Seven Years, 1865 *to* 1871.
Religion or Caste.

	1865.		1866.		1867.		1868.		1869.		1870.		1871.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
Christians	816	443	728	346	453	240	478	343	463	239	392	263	359	276
Hindoos	9307	6040	8081	4982	4417	3100	5532	3356	5118	3527	4009	2794	4090	2766
Mahomedans	3976	2638	3898	2219	2266	1599	2521	1474	2298	1406	1602	1030	1678	1128
Jews	4	3	2	0	6	3	7	7	4	0	2	1	1	1
Chinese	10	2	26	1	11	2	14	0	7	1	8	1	1	0
Parsees	0	0	0	0	0	0	1	0	1	1	0	0	0	0
Total	14,116	9126	12,735	7548	7153	4944	8553	5180	7891	4904	6013	4089	6129	4171
Total Mortality	23,242		20,283		12,097		13,733		12,795		10,102		10,300	

For the annual reports of that municipality from 1865 to 1872, inclusive, the Board is indebted to Her Britanic Majesty's Government, and the courteous offices of Mr. de Fonblanque, British Consul at the port of New Orleans.

A brief comparison of the characteristics of water of the river Hoogly and that of the Mississippi River, may not be uninteresting to persons living in New Orleans, supplied from the latter, and compelled to use its muddy water.

The analyses were made in 1872.

Calcutta water, before filtration, contained from 6.44 to 69 grains of suspended matter per gallon.

Mississippi water, before filtration, contained 157 grains of suspended matter per gallon.

Calcutta water, before filtration, contained from .042 to .180 grains animal matter per gallon.

Calcutta water, after filtration, contained from .012 to .084 grains animal matter per gallon.

Mississippi water from hydrant, unfiltered, contained from .029 to .072 grains per gallon.

The Mississippi water, unfiltered, is much purer and safer to drink than the filtered water of the Calcutta river, for the average amount of animal matter, which is the worst impurity in drinking water, is much less. The suspended matter, clay and mud, is far greater in amount, but is not particularly unwholesome.

In the above estimate of animal matter, the albumenoid ammonia was first determined by Nessler's test, and this was multiplied by six to give the amount of nitrogenous animal matter; as one part of ammonia is furnished by the decomposition of six parts of dry albumen.

QUARANTINE.

Quarantine was maintained throughout the year at the Mississippi Station, from May 1st to October 31st at the Atchafalaya Station, and from July 1st to September 30th at the Rigolettes Station.

The Valparaiso appeared at the Mississippi quarantine station June 24th, eight days from Havana. On the 26th, no cases of yellow fever having occurred on board since leaving port, she was allowed to come to the city. On the 4th July a case of yellow fever occurred on board the Valparaiso, in the person of the mate, who was employed in the hold of the ship, directing the stowage of the cargo; and from this vessel apparently sprang the infection of yellow fever which afterwards extended widely.

It is evident that although the ten days now required by law may be a sufficient period of time to determine whether crew and passengers will be attacked with yellow fever, as regards renderlng the vessel harmless to the community, time alone is of no value.

At Pensacola, the ship Golden Dream, from Havana, lay in quarantine twenty-one days, and was then moved to the wharves of the town. In five days thereafter a case of yellow fever occurred among the laborers on the ship, employed to put in her cargo. Other cases followed, resulting in an epidemic at Pensacola, and several other villages with which close relations existed.

It is evident that experimental disinfection must be made, and repeated, until it is demonstrated that all infection of a ship and cargo can be destroyed. When such a result is achieved we shall have secured that great desideratum, "quarantine without obstruction to commerce."

Ample funds should be placed at the command of the Board to make such experiments at the Quarantine Station during the approaching summer. The apparent success of disinfection of premises in yellow fever during the present year, give decided encouragement to hope that the certain and speedy disinfection of cargoes and holds may be secured.

SMALL-POX.

Thirteen hundred cases of small-pox and varioloid have occurred during the year. Of these seven hundred and ninety-five recovered, and five hundred and five died.

There were in

January	154 cases.
February	194
March	220
April	184
May	160
June	75
July	21
August	8
September	15
October	14
November	108
December	146

In assigning the responsibility for the prevalence of this preventable disease in the city of New Orleans during the year, it is to be remembered that the law of the State, which gives the Board of Health its powers, and by which its duties are defined, does not mention the subject of vaccination, and provides no means to carry into effect schemes for vaccinating those who require it. The Board of Health, however, furnishes a limited supply of pure, fresh vaccine gratuitously to all physcians of the State who apply for it. It offers gratuitous vaccination at the offices of its Sanitary Inspectors to all who apply, and enforces its ordinance, that no child shall attend the public Schools unless protected from small-pox.

All this, however, is insufficient to fully protect the community, when an epidemic of small-pox threatens.

At such a moment house-to-house vaccination is the only preventive measure of value.

As the city government alone has control of means, and possesses proper powers to provide this house-to-house vaccination, the Board of Health, taking into consideration the general prevalence of small-pox in northern cities and communities, and the unprotected state of the inhabitants of the city, on the 26th of November, 1872, addressed the following communication to the municipal authorities.

At this date only nine cases were known to have occurred in the thirty days preceding.

OFFICE BOARD OF HEALTH.

Hon. Mayor of New Orleans:

SIR—I am credibly informed that epidemic small-pox exists in St. Louis and Louisville.

A number of cases of small-pox have been brought to the city, but having been promptly removed to Hospital, thus far no visible damage has occurred to the health of our citizens.

A continuance of this good fortune is very improbable.

As the best and only preventive of the injuries which small-pox would inflict on this city, I recommend that gratuitous vaccination be offered at every house in the city; and to secure this, that the Honorable City Administrators pass an ordinance authorizing the Board of Health to secure such ample supply of vaccine virus, and to employ such number of physicians, as will secure the visitation of every house in the city in the course of ten to fifteen days.

The expense of such a proccedure will be something, but it is to be remembered that every case of small-pox, treated at hospital, costs the city from twenty to fifty dollars, to say nothing of the loss of labor value, of the suffering of the sick, the anxiety of the friends and families, the numerous deaths, and the extensive injury to the commercial prosperity of the town.

Very respectfully,
Your ob't servant,
C. B. WHITE, M. D.
President Board of Health.

The Honorable Administrators took no notice whatever of the communication, and the result of this shameful neglect was the cost to the city of tens of thousands of dollars, thousands of wearisome days of distress to the sick, years of disfigurement to those who recover, and five hundred deaths.

It was evident early in October of the present year, that small-pox, instead of totally disappearing in the summer, as is usual, had, by means of concealed cases, passing the disease from one to another, been kept alive, and cold weather only was needed to develop the contagion to destructive proportions.

The following communication was therefore made to the City Government:

OFFICE BOARD OF HEALTH, STATE OF LOUISIANA,
New Orleans, October 20, 1873.

To the Hon. L. A. Wiltz, Mayor of New Orleaas:

SIR—As instructed by the Board of Health, I have the honor to forward a report received at its last meeting from Dr. Russell, its Secretary, on the prevalence of small-pox at this time, as compared with the same period last year.

In view of the facts presented, the Board of Health respectfully invites the attention of the Hon. City Administrators to the last communication to the city government on the subject of a small-pox hospital.

The Board of Health desires, also, to bring to the recollection of the city government its communication of November 26, 1872, on the subject of a general gratuitous house-to-house vaccination. It recommends, at this time, that the city be divided into districts of suitable size, a proper number of physicians be appointed, an ample supply of vaccine be secured, and that vaccination be offered at every house and urged upon the ignorant and negligent by the authorized agents of the city.

The Board of Health, if it be desired, will organize the service and supervise the work, but has no funds to pay physicians or to procure the supply of virus required.

Action, to have the best success, both sanitary and pecuniary, should be immediate. The use of preventive measures will save much sickness and suffering to the people, much loss of life and expense to the city treasury, beside preventing the spread of the disease to other parts of the State by the numerous routes of travel and commerce.

Adoption of the measures proposed to the Hon. Common Council last year would, as was predicted, have prevented much sickness, suffering, and loss of life of citizens, and saved many thousands of dollars to the public treasury.

I have the honor to be, sir, very respectfully, your obedient servant,

C. B. WHITE, M. D.,
President Board of Health.

As was the case the year before, no attention was paid to the communication, and to this time no action has been taken in reference to vaccination.

Just previous to the close of the year, in the last four days of December, the City Government took decisive measures to establish a small-pox hospital. It is believed that the community are almost wholly indebted to the good judgment and persistent endeavors of Hon. Administrator Fitzenreiter, for this most desirable result.

After the experience of last year, as shown by the effects of small-pox, given in the foregoing pages, the neglect was most culpable, and indicates gross neglect, or total incapacity.

The Board of Health recommend that the duty to devise means, the power to act, and to compel the city authorities to furnish the means to carry out the necessary action, be transferred to the Board of Health.

This method just recommended, is the only one available in the present state of legislation.

The true source of relief from the whole trouble of small-pox is *compulsory vaccination* of the *whole population*, as now practiced in other countries.

The principle underlying the practice is, that any unvaccinated person is a danger to his neighbor, a standing threat of disease and death. No individual has the right to place the community in continuous peril.

The Board of Health urgently recommend, that all police juries throughout the State be required by law to provide and maintain an ample supply of pure and fresh vaccine virus, from November 1st to May 31st, and to furnish gratuitous vaccination to all citizens, through a competent, medical health officer.

The sanitary care of its citizens is the first duty of the State.

Vigorous efforts to repress the disease were made by the Sanitary Inspectors, and the sanitary police under their direction.

The sick, unless in isolated localities, or discovered when removal was needless, because of the recovery of the patient,

or rendered improper by reason of the imminence of death, were removed to the small-pox hospital.

After the removal, death or recovery of the sick person, rooms were thoroughly disinfected by free use of chlorine gas. The clothing and bedding were treated either by chlorine, boiling water, or burning. All persons residing in the infected premises were vaccinated, or revaccinated, as circumstances indicated.

By these means great restraint was placed upon the spread of the contagion, and the course of the disease considerably modified, and the prevalence of the disease greatly delayed and diminished.

CHOLERA.

The first appearance of this disease in the United States in 1873, was at New Orleans.

The history of the first twenty cases of cholera and cholera morbus is therefore given, as being of general interest.

Although various names were given to cases of the prevailing choleraic disorder, the nature of the disease was in all identical, the distinction in name implying no difference in character.

In the investigation of the cases, careful inquiry was made as to the importation, portability and infectiousness of the disease, and embraced all particulars with reference to contact with passengers, or their baggage, the washing of clothes from persons on shipboard, etc.

The first death of the disease occurred February 9th, and the last November 21st. Only seven cases occurred in the last six months of the year.

Case No. 1—Peter Thomson, a sailor, said to be a German, aged 56 years, died of cholera, February 9th, at 39 Ferdinand street.

Thomson went to Pensacola, Florida, from Galveston, Texas. At Pensacola, finding no work, he left his children, and came to New Orleans, *two months* before his illness. He found no work until two days before his death, at which time he began to assist in discharging general cargo from a Liver-

pool vessel, one and one-half blocks below the head of Ferdinand street. Four squares below lay a Bremen bark. At 2 P. M., of February 8th, the second day of his labor, he was taken sick, and died at 9 A. M., the next morning, February 9th.

Eight other men, who worked on the levee with him, boarded in the same house. None of these suffered from the disease. There had been no sickness on the ship.

No other case of cholera occurred in this vicinity until May 20th, case No. 192 of the record, distant in space one and one-half blocks in direct line, and distant in time one hundred days.

Thomson was a temperate, steady man. The attending physician reported the case one of sporadic cholera, in his opinion, caused by eating largely of cabbage, while suffering from diarrhœa.

Case No. 2—Justice Coig, native of France, aged 26 years, died February 10th, of cholera morbus, at the corner of Hancock and Levee streets, a point two squares above the United States Barracks, and about *two miles* distant from the locality of case No. 1.

This man was a butcher, a hard drinker; occupation, slaughtering beeves for his brother, at the Abbattoir, just below Jackson United States Barracks.

He was taken sick during the night of the 9th February, and died on the morning of the 10th. He had resided in the city four years, living with his brother at the locality mentioned; had not been absent from home, save at work, for some time, and had visited no ships. No ships lie near that part of the city.

Surgeon R. S. Vickery, U. S. A., who was called to attend him, says: "I found him in bed, in a cold, barn-like loft, in a "place used for storing green hides. He was in a state of col-"lapse, cold extremities, pinched features, speechless or nearly "so." * * * * * *

"From a comrade who had been with him a part of the time, "I learned that he was seized in the night with an attack of "bilious cholera, which soon passed into serous vomiting and "purging. This had ceased from exhaustion before I saw him, "and the evacuations had all been thrown away." Dr. Vickery

attributed the fatal termination of the case partly to the extreme cold of the weather.

He also remarks: "not having heard of any similar case in that neighborhood, I reported it cholera morbus, but some weeks later, should most probably have called it true cholera."

Case No. 3—Joseph Honoci (creole), colored, native of the State, speaking French, aged 52, died February 28th, of cholera, on Dumaine street, between Roman and Derbigny streets.

This death occurred eighteen days after the death of case No. 2, in a locality far removed from either of the first two cases, and having no connection with either of them.

Honoci was employed as a laborer, unloading the Belle Lee, a river steamboat, at the head of Canal street, on February 27th, came home that evening, and died the same night at 12 o'clock.

The sister and wife of Honoci, his brother-in-law, and three children, occupied the house, which Honoci owned, with the deceased. No other case occurred on the premises, and none in that vicinity, until May 13th, case No. 152 of the record.

It is to be remembered that the shipping and steamboat landings are at different portions of the levee; that ships are never landed or unloaded at the steamboat levee, or vice versa, and that those who unload ships seldom work on steamboats, and steamboat hands are rarely employed about ships.

Case No. 4—Hannah Nelson, female, black, aged 21, died March Ist, of cholera, at 166 Franklin street.

Whilst returning from the funeral of her husband on the afternoon of February 28th, she became too ill to go to her residence, 55 Burgundy street, and stopping at the house of a friend, remained there until her death, which happened the next day.

The husband, Edward Nelson, by the neighbors was stated to have died by disease similar to that of the wife. His physician gave a certificate of death by acute gastro enteritis, and upon after inquiry being made, insisted on the correctness of the diagnosis already given.

Nelson came into the city on the Mississipi River boat R. E. Lee, February 24th; worked on her during the 25th, and until 3 P. M., of the 26th, at which hour he was carried home, and

died the next morning. The premises were in good condition, seven rooms, six occupants. No one here had anything to do with shipping. Nelson visited no other parts of the city between his arrival and death.

Case No. 5—Margaret Woods, female, black, 4½ years of age, died of cholera morbus, March 2d, at 533 Goodchildren street. In the same house, on March 8th, died No. 10 of the record, Isabella Woods, her sister, aged 2½ years.

On March 1st, Perry Scott, uncle of these two children, living at the same place, died, and was buried by the Coroner, who gave a certificate of death by diarrhœa. He, however, had the body interred in haste, giving as a reason that Scott had died of a dangerous disorder, and the safety of the community required speedy burial. The case was not reported to the Board of Health, and the facts stated were elicited in the investigation made of the Woods' cases. Scott was a laborer on the steamboat levee.

The house where these cases occurred was small, crowded, with a very foul privy vault. This was disinfected, and the premises vacated. No other deaths occurred in this immediate vicinity for the next ninety days.

Case No. 6—Robert Banks, male, black, aged 50 years, died of cholera, March 3d, corner of Prytania and Polymnia streets.

Banks kept an eating-house on the levee, near Canal street, went to his business in the morning, and died at 2 P. M. of the same day. No circumstances connect this case with the shipping. The premises in which he lived and died were in bad sanitary condition, the house old and leaky, stable filthy, privy vault overflowing into yard. The premises were disinfected, vacated, and remain unoccupied. Case No. 22 occurred five blocks distant and twenty-eight days later. Case No. 36, two blocks distant and forty days later. No connection between the two cases traceable.

Case No. 7—George Williams, male, black, 29, taken sick March 2d, at No. 59 Erato street, removed to Charity Hospital, died March 4th of cholera morbus.

Williams came to the city from one of the Red River parishes fifteen days before his death, worked on the steamboat levee, unloading barges from St. Louis, one of which he "pumped

out" the night he was taken sick. He did not lodge at 59 Erato street, but somewhere about the New Basin.

Case No. 8—Daniel Donovan, white, male, native of Illinois, aged 18 years, "homeless," admitted to Charity Hospital March 3d, died March 6th, of cholera morbus. Came from Natchez, Mississippi. Had been in the city *five* (5) days.

Case No. 9—Mrs. Nairnes, 34, died March 8th, of cholera morbus, at 132 Dryades street.

Previous to the sickness of Mrs. Nairnes, the husband, by trade a tailor, had an attack said to be similar to that of the wife, but recovered. After the death of Mrs. Nairnes their child was attacked, and recovered.

The habits of both husband and wife were bad, the latter being reported a hard drinker.

The family had no connection with either boats or shipping. The premises are unhealthy, being low and damp. Stagnant and filthy water was found in the yard. No. 12 was three blocks distant from this place, but no connection existed between them.

Case No. 10—Isabella Woods, black, aged 2½ years, died of cholera morbus, at 533 Goodchildren street, a sister of case No. 5. The history has already been given.

Case No. 11—Frank Baisey, male, black, 45, died of cholera morbus, March 7th, at 308 Perdido street.

Baisey was employed on the steamboat Levee; had not been at work the day upon which he was taken sick. His physician attributed his attack to an immoderate meal of pigs' feet eaten just before going to bed at night. He had visited no sick persons. His child, wife and another woman living in the house did not have the disease. No connection with shipping could be ascertained.

The premises were in good order, lot well filled, yard paved. The location is back of Galvez Canal, one of the foul draining ditches of the city, and subject to both swamp and sewage poison.

Case No. 12—James Johnson, male, black, aged 60 years, died March 10th, of cholera, at the corner of Lafayette and Basin streets.

Diarrhœa for a week preceded the marked symptoms of cholera.

Johnson occupied a room extending over a portion of the privy vault, the odors of which came up through the floor, near which he slept upon a low bed. By the attending physician his illness and death were attributed to the effects of the poisonous air from the vault.

Johnson was a laborer on the steamboat levee. No connection could be traced with shipping. No other case occurred here.

Case No. 13—Charles Higgins, black, 1 year, died March 15th, of cholera morbus, at the corner of Dauphine and Marigny streets.

The child and mother have been living on the premises for *five months.* Neither the mother, the two remaining children, nor the six other persons living there, suffered with the disease. No connection with the shipping ascertainable.

Case No. 14—Mary Adams, female, mulatto, 2 years of age, died March 23d, of cholera, at 128 Toulouse street.

The premises, although containing 14 rooms, occupied by 26 persons, were in good sanitary order. An uncle of the child, just from St. Charles Parish, a few miles above the city on the river, was reported as having eaten of fish a few days previously; as having been taken ill, fallen into a typhoid state, and finally died at this house. This statement was made by the physician who attended him. There was no connection with shipping.

Case No. 15—Kate Duane, white, aged 7, died of cholera morbus, March 28th, on Claiborne street, between Cypress and Lafayette streets.

Her illness lasted 24 hours.

The father of the child drove a grocery wagon, had nothing to do with shipping. No connection with suspicious persons or places could be traced.

Three other persons occupying the premises escaped similar illness.

Case No. 16—William Brady, white, 40 years, "homeless," two days in the city from Texas, admitted to the Charity Hos-

pital March 30th, and died the same day. Certificate, cholera morbus.

Case No. 17—William Johnson, white, male, 23 years, died of cholera, March 30th, on steamboat "Sabine," just from Ouachita River, lying at the foot of Customhouse street. Certificate of Coroner. No history could be ascertained. His death occurred on the same day on which the boat arrived in the city.

Case No. 18—Isidore Naines, black, male, 27 years, died of cholera, March 31st, at No. 76 Treme street.

Naines was a steamboatman, had been running in the Ouachita River trade for a month previous to his illness, and upon the steamboat "Sabine," as had Johnson—case No. 17.

He was taken sick the day the boat arrived in port, dying the next day at 3 P. M. No other cases occurred at the locality of his death.

Case No. 19—Sarah Jackson, 3½ years, white, died of cholera, March 31st, at No. 146 Chartres street.

Case No. 20—Henrietta Jackson, sister of Sarah, white, 5 years, died at the same house, of the same disease, the next day, April 1st.

These cases had no connection with the levee, or with suspicious persons or places. The premises were filthy, and abutted on the foul and offensive vaults of a row of tenement cottages, at that date, not reached by the annual house-to-house inspection.

The vaults and premises of this and neighboring houses were disinfected. No other cases in the immediate vicinity.

Case No. 21—Louis Davis, white, 35, died of cholera, April 1st, at 17 Jackson street.

Davis was a sailor, had been living four months at the locality named. Just before his death, the day of the attack, he had beeen employed shifting ballast in the hold of the ship "Research," from Galveston.

The attending physician considered the disease to have been caused by drinking very largely of cold water while overheated by work in the vessel's hold. The premises where deceased lived were in good sanitary condition. No other cases at this locality.

Case No. 22—Charles A. Wilson, white, 30, died April 1st, of cholera, on Prytania, near Jackson street, a grocer, a man of means, living in the best portion of the city, having had no connection with shipping, nor with infected places or persons. He had committed serious errors in diet the day preceding his attack, which terminated in death in twelve hours. No other members of the family attacked. No other case occurred within six blocks, save No. 182 of the record May 16th.

Case No. 23—George Patterson, black, 45 years, laborer, died March 30th, of cholera, at No. 5 Theresa street.

Patterson had been working at Hoelzel's corn-mill, Cor. Tchoupitoulas and Calliope streets, four weeks previous to his death. Was at church March 30th, and died at 12 M. the next day. Three men living in this house worked on the steamboat landing. The premises were crowded, thirty persons in eight rooms, and were in filthy condition, as was the neighborhood.

The physician attending, attributed the illness to the damp and bad condition of Patterson's lodging room, and to the improper and unhealthful quality ot his food.

Case No. 24—J. Baptiste, male, black, 26 years, laborer, died of cholera, April 2d, at the corner of Marengo and Tchoupitoulas streets.

The usual occupation of Baptiste was wheeling coal, but he had been at work at the salt warehouse, near Jackson street, two or three before days his last illness. Had lived *eight* months in the neighborhood where his death occurred.

Premises in good order. No other case in the vicinity.

Case No. 25—B. Johnson, male, black, aged 20 years, died of cholera morbus at the Hotel Dieu, April 1st. Was admitted from the St. Louis steamboat "Continental" in a dying condition. The "Continental" arrived at the levee March 31st.

Of these first twenty-five cases, the white numbered eleven (11), colored, fourteen (14).

The population of New Orleans is estimated at 200,000. of which one fourth belongs to the African race, or is of mingled blood, so that if the races had been equally affected, the proportion should have been, say six colored to eighteen whites.

The mortality, throughout the prevalence of cholera, was at the rate of ten blacks to thirteen whites.

The negro race, as is well known, suffer more severely from cholera than the white races.

The multiple cases cases of the cholera record are:

Nos. 5, Margaret Woods,	535 Good Children st.	March 2d.
" 10, Isabella Woods,		" 8th.
" 17, William Brady,	S. B. Sabine.	" 30th.
" 18, William Johnson,		" 31st.
" 19, Sarah Jackson,	146 Chartres street.	" 31st.
" 20, Henrietta Jackson		April 1st.
" 34, Joseph Stratmeyer,	Gentilly road.	" 12th.
" 46, Mrs. Stratmeyer,		" 15th.
" 49, Francisco,	238 Julia street.	" 16th.
" 55, Francisco,		" 17th.
" 56, Antonio,		" 18th.
" 64, Collin,	10 Dumaine street.	" 22d.
" 68, Allain,		" 24th.
" 75, O'Brien, Julia	308 Magazine street.	" 26th.
" 79, O'Brien, John		
" 158, Mr. Bire, (recovered)	cor. Julia and Delta.	May 14th.
" 159, Lizzie Bire, (died)		
" 191, Colored woman,	Insane Asylum.	" 20th.
" 226, Joseph Dolun,		" 28th.
" 253, Charles Ploff,		June 21st.

The history of the first three multiple cases has been already given.

Nos. 34 and 36 lived on the Gentilly road, two miles from the built up portion of the city. The ridge is a narrow strip of land, slightly elevated above the swamp, extending for several miles through the continuous marsh surrounding New Orleans.

Nos. 49, 55 and 56, were relations. A member of the family being asked if he knew of any local cause for the sickness, stated that the premises were clean, and in excellent sanitary condition, closing with the casual remark, as of something of no importance; that the *privy overflowed the yard* every time it rained. These cases seem so nearly synchronous as to indicate rather a common cause than successive infections, as does the fact that no other cases occurred in the family after vacating the premises, which was effected immediately after the death of the 17th. Each of the next three series were evidently from a common cause, but each series was isolated and independent.

In the last series, at the Asylum, no evidence of interdependence could be traced.

The total number of cholera deaths, in the first six months of 1873 is two hundred and forty-four (244).

During the same period, the cholera infantum deaths amounted to eighty-five.

As the average cholera infantum death rate for the first six months of five successive years is about forty (40), it is probably just to attribute the increase of mortality this year to cholera sporadica, and estimate the total mortality by this last mentioned disease, at about three hundred (300).

The disease occurred in nearly all parts of the city; yet, as usual in cholera epidemics, those living in the densely populated and unclean parts of the city, suffered most.

No suspicion of the existence of cholera in New Orleans, having been aroused, and it not being unusual for fatal cases of congestive intermittent to be furnished with certificates of death by cholera, or cholera morbus, the first six cases were not called to the attention of the Board.

The seventh occurred at the Charity Hospital, and official notice was given of its existence. The history of antecedent cases was therefore immediately looked up, and every subsequent case visited without delay, and its history carefully ascertained.

Some discussion having arisen since that time, as to the question of importation, the ground has again been carefully gone over, and the particulars of the cases, whose history has been furnished, when practicable, minutely ascertained.

These inquiries, as previously stated, embraced all modes of infection and importation, as by visiting ships, the washing of clothing for persons connected with shipping, visiting of sailor-boarding houses, contamination of drinking water, etc., etc. This remark applies, not only to the twenty-five cases, whose history is given in full, but to every case recorded.

The statement has been made in many newspapers, and some scientific journals, that cholera was introduced into New Orleans by vessels from foreign ports—attention being specially directed to those of the Black and Baltic seas. Through incor-

rect information, some notoriety was given to the statement that Odessa was the source and origin of all the evil.

Examination of the records of the arrival of vessels, demonstrates that from October 1st, 1872, to June 1st, 1873, no vessel came to New Orleans from Odessa, or any point on either the Baltic or Black seas, and that the only arrivals with passengers from European ports, from January 1st 1873, to May 1st, 1873, were from Llverpool and Newport, England; Hamburg, Bremen, Palerma and Marseilles.

All sick emigrants in charge of the Emigration Bureau are sent to pay wards of Charity Hospital for treatment. Foreign sailors are sent to this institution, and to the Hotel Dieu. No case of cholera occurred among emigrants. Two seamen of the English ship "Belgravia" were attacked with cholera, the one April 14th, and recovered; the other, April 16th, and died the 17th.

The Belgravia left England January 29th, passed Quarantine April 4th. Her crew had therefore been ten days in New Orleans, and seventy-five days out from Liverpool before the appearance of the disease. Thirty-seven cases of cholera had occurred in New Orleans previous to the sickness of these seamen.

These are the only two cases of cholera that occurred among, or near to the shipping, or that had any connection with it.

Referring to the question of the introduction of cholera from foreign ports into New Orleans, Dr. Howe, resideut physician at the Quarantine Station, Mississippi river, makes the following statement:

OFFICE OF QUARANTINE PHYSICIAN,
Mississippi River, July 21, 1873.

C. B. WHITE, *M. D., Pres't Board of Health, New Orleans, La.:*

DEAR SIR—Yours of July 18th, making inquiry as to whether or not any vessel had passed the Station since Jan'y 1st, 1873, on which there existed cholera, or upon which cholera had existed during the voyage and prior to arrival here, is just at hand.

Since January 1st, 1873, there have passed and been personally examined, six hundred and thirty-eight vessels of all kinds,

and in no instance has there been cholera in any form. Nor has there been, as far as I could ascertain, any cholera during the passage of any vessel to this port. My information has been, in every instance, obtained from the master of the vessel, as well as from the medical officer when there was one on board. In some instances, when vessels have arrived from ports where cholera was supposed to exist, I have required a sworn statement from the master, signed by himself, which are kept on file as additional evidence. And in no instance have I had reason to doubt the truth of any statement or sworn affidavit.

Attached and forming a portion of this report will be found an official list of infected vessels arriving here since January 1st, 1873, as well as of vessels detained in quarantine, with full particulars concerning cause of detention, number of sick removed, with disease and result.

Any further information will be given with pleasure, while I remain,

Very respectfully,

GEORGE HOWE, M. D.,

Resident Physician, Quarantine Station,

Mississippi River.

From the facts and statements furnished it is evident that the epidemic is singularly free from even the suspicion of importance.

The following table comprises all cases of cholera and cholera morbus reported to the Board of Health. It is almost wholly a record of deaths.

Date.		Number of Deaths.
FEBRUARY.		
Feby.	9	1 case.
"	10	1 case.
"	28	1 case.
MARCH.		
March	1	1 case.
"	2	1 case.
"	3	1 case.
"	4	1 case.
"	6	1 case.
"	7	1 case.
"	8	2 cases.
"	10	1 case.
"	15	1 case.
"	23	1 case.
"	28	1 case.
"	30	1 case.
"	31	3 cases.
APRIL.		
April	1	4 cases.
"	2	1 case.
"	3	2 cases.
"	5	1 case.
"	6	1 case.
"	8	1 case.
"	10	1 case.
"	11	4 cases.
"	12	2 cases.
"	13	1 case.
"	14	3 cases.
"	15	5 cases.
"	16	5 cases.
"	17	4 cases.
"	18	1 case.
"	19	3 cases.
"	20	1 case.
"	21	1 case.
"	22	3 cases.
"	23	1 case.
"	24	6 cases.
"	25	3 cases.
"	26	4 cases.
"	27	5 cases.
"	28	9 cases.
"	29	9 cases.
"	30	9 cases.
MAY.		
May	2	6 cases.
"	3	4 cases.

Date.		Number of Deaths.
MAY (CONTINUED).		
May	4	2 cases.
"	5	4 cases.
"	6	1 case.
"	7	6 cases.
"	8	2 cases.
"	9	6 cases.
"	10	4 cases.
"	12	5 cases.
"	13	3 cases.
"	14	8 cases.
"	15	8 cases.
"	17	9 cases.
"	18	4 cases.
"	19	3 cases.
"	20	9 cases.
"	21	3 cases.
"	22	7 cases.
"	23	4 eases.
"	24	3 cases.
"	25	4 cases.
"	26	3 cases.
"	27	6 cases.
"	28	5 cases.
"	29	4 cases.
"	30	2 cases.
JUNE.		
June	3	1 case.
"	4	3 cases.
"	5	1 case.
"	6	2 cases.
"	11	3 cases.
"	13	1 case.
"	15	1 case.
"	17	2 cases.
"	19	1 casc.
"	20	1 case.
"	21	1 case.
"	25	1 case.
JULY.		
	4	4 cases.
AUGUST.		
		1 case.
SEPTEMBER.		
		1 case.
OCTOBER.		
		None.
NOVEMBER.		
		1 case.

RECAPITULATION.

February	3
March	16
April	90
May	125
June	18
July	4
August	1
September	1
October	0
November	1
Grand Total	259

As but eight cases of cholera occurred in the last six months of 1873, and but four of these in July, the meteorology of only the first six months of the year, has interest in this connection.

METEOROLOGICAL CONDITIONS OF THE FIRST SIX MONTHS OF 1873.

Range of Temperature.

31 days January—	10 days daily range over.....	14 deg. F.	
	1 " " of	19	
	2 " " over.....	20	
	mean range.....	12.76	
28 days February—	15 days daily range over.....	14	
	3 " " "	19	
	2 " " "	20	
	mean range.....	15.59	
31 days March—	19 days daily range over.....	14	
	3 " " of	19	
	4 " " over.....	20	
	mean range.....	16.17	
30 days April —	20 days daily range over	14	
	1 " " of	19	
	4 " " over.....	18	
	mean range.. ...	16.06	
31 days May —	14 days daily range over.....	14	
	1 " " of	21	
	3 " " "	18	
	1 " " "	19	
	mean range.....	14.29	
30 days June —	7 days daily range over.....	14	
	5 " " of	16	
	1 " " "	20	
	mean range.....	13.38	

The first deaths of cholera, or cholera morbus, occurred February 9th and 10th. On the 7th the range of temperature was 24.5 deg. F.; on the 10th 19.51 deg. F. It will be recollected that Surgeon Vickery, in his account of the second case, thought the unusual depression of temperature had much to do with its fatal result.

The third death of cholera occurred February 28th. On the 24th, 25th and 26th, the ranges of temperature were respectively 18 deg., 19 deg. and 17 deg.

During the first ten days of March, nine (9) deaths occurred, accompanied by very considerable daily oscillations of temperature, the mercury ranging on one day 18 deg., on another 20 deg., and on two days 20.5 deg.

The months of March and April throughout, present remarkable daily ranges of temperature.

It seemed pretty evident that in many cases, the exciting cause of the attack was sudden and considerable change of temperature.

I append a table of ranges of temperature of all days exceeding 12 deg. F., and also, one showing greatest and least range for each week of the six months, and mean range for the same months :

List of Days when the Range of Temperature was greater than 12° F. in New Orleans, during the six months ending June 30, 1873.

JANUARY.		FEBRUARY.		MARCH.		APRIL.		MAY.		JUNE.	
Day.	Range.	Day.	Range.	Day.	Range.	Day.	Range.	Day.	Range.	Day.	Range.
	°F.		°F.		°F.		°F.		°F.		°E.
4th.	14.	1st.	17.5	1st.	15.5	2d.	17.	1st.	I3.	1st.	13.
6th.	13.	2d.	13.	3d.	14.5	3d.	20.	2d.	12.5	2d.	14.
11th.	16.	3d.	20.	4th.	15.	4th.	16.	3d.	21.	3d.	16.
12th.	14.	4th.	17.	4th.	20.5	6th.	12.5	5th.	13.	4th.	13.
13th.	17.	6th.	21.	6th.	20.	7th.	13.	6th.	18.	6th.	13.5
16th.	13.	7th.	24.5	7th.	20.2	8th.	30.5	7th.	16.	7th.	14.
17th.	13.5	10th.	19.5	10th.	18.	9th.	16.5	8th.	19.5	8th.	13.5
18th.	19.	11th.	14.	11th.	16.	10th.	21.	10th.	13.	9th.	13.
19th.	18.5	12th.	12.5	13th.	16.5	11th.	20.	11th.	14.	11.th	14.
20th.	23.5	13th.	24.	14th.	21.5	12th.	14.5	12th.	16.5	12th.	16.
23d.	15.	14th.	15.	15th.	19.	13th.	17.	14th.	17.	14th.	14.
24th.	18.	15th.	15.	17th.	14.	16th.	22.	15th.	13.5	15th.	12.5
25th.	22.5	16th.	13.5	21st.	16.5	17th.	18.	16th.	16.5	16th.	14.5
30th.	16.	17th.	14.	22d.	22.5	18th.	23.5	17th.	18.	18th.	14.
31st.	15.	18th.	15.	24th.	20.	19th.	18.	18th.	14.	19th.	16.5
		20th.	12.5	25th.	37.	20th.	18.	20th.	14.5	20th.	13.
		21st.	13.	26th.	16.5	21st.	22.	21st.	13.5	21st.	20.
		22d.	19.5	27th.	22.	22d.	18.5	22d.	14.5	22d.	13.
		23d.	13.	28th.	14.	23d.	16.5	23d.	12.4	23d.	14.
		24th.	19.	29th.	17.	26th.	19.	24th.	15.	25th.	16.
		25th.	18.	30th.	22.	27th.	16.	25th.	14.5	26th.	14,
		26th.	13.	31st.	15.5	28th.	16.5	27th.	18.5	27th.	13.
		27th.	15.			30th.	12.5	28th.	13.5	29th.	14.5
		28th.	17.					29th.	16.	30th.	16.5
Monthly mean.	12.76		15.59		16.17		16.06		14.29		13.38

TABLE—Showing Variations of Temperature in New Orleans during the Six Months ending June 30th, 1873.

Month.	Daily Range ° F.			No. of days over 20° F.	No. of days over 14° F.	No. of days over 8° F.
	Highest.	Lowest.	Mean.			
Jany....	23.5	5.0	12.76	2 days.	10 days.	27 days.
Feby...	24.5	7.5	15.59	3 "	15 "	27 "
March..	37.0	7.5	16.17	7 "	19 "	29 "
April...	30.5	6.0	16.06	5 "	20 "	27 "
May....	21.0	9.0	14.29	1 "	14 "	31 "
June....	20.0	5.5	13.38	0 "	7 "	28 ".
				18 days.	85 days.	169 days.
			14.66†			

April and May are the diarrhœa months of New Orleans. The attacks are seldom severe, and in most cases, yield immediately to a very moderate dose of some mercurial, with or without opiates or astringents.

This, too, is the cholera infantum period of the year in New Orleans. Our small mortality from that disease, occurs almost entirely in the first half of the year.

The comparative exemption of New Orleans is probably in a considerable degree attributable to the evenness of our summer temperature.

The summer thermal lines given in the last report of the Board of Health of New Orleans, afford an interesting comparison with those of the Board of Health of New York, for the same period.

In calling attention to rain-fall, as exhibited in the chart farther on in the report, it is to be remembered that in 1873, April and May, meteorologically, seemed to have changed places. April is usually a showery month, and May almost unvaryingly pleasant—literally a month of sunshine.

The chart shows April, of 1873, very dry, and May a month of heavy and repeated rain-falls. In New Orleans, one half inch of rain-fall is only an ordinary shower, whose effect immediately disappears, unless it has been preceded by others.

With the high, cool and dry winds prevailing, the whole city, during the month of April, was enveloped in clouds of dust.

Several days entirely without fall of rain preceded the appearance of the first cases of cholera in February, and again preceded the first cases in March.

There is a general coincidence between the occurrence of cholera cases and the lack of rain-fall, which is more noticable by the table of cases than on the chart, as lines of the latter are drawn to show deaths by weeks.

New Orleans should be free from contagion of drinking water by cholera poison, as usually caused, because of its water supply.

The larger portion of its inhabitants drink rain water, from cisterns, which are invariably above gronnd. The remainder drink hydrant water from the Mississippi. Water from wells is never used for cooking or drinking.

The clouds of dust alluded to might be considered as affording a means of conveyance of poison germs to the food and water of the people, and would certainly give them abundant access to the lungs, if that be considered a mode of entrance for them.

By those who think that no evidence exists of the presence in New Orleans of the peculiar poison of Asiatic cholera, this meteorological condition, and its result of continuous foul dust and exhalations, are considered ample cause for the prevalence of the disease under discussion.

The street cleaning of New Orleans consists mainly in scraping the decaying animal and vegetable matter from the gutters, and throwing it up into piles, or scattering it upon the streets.

Theoretically, this filth is moved every day; practically, occasionally.

These matters, left upon the streets, are pulverized by passing vehicles and animals, and in the dry and windy weather are lifted into the air, penetrate all dwellings, and reach the food, drink and lungs of the people.

The dust of our ordinary earth streets contains 15 per cent. of animal and vegetable matter. What the contents of our gutters are, their possible capacity of elimination of noxious gases, when undisturbed and uncleaned by frequent summer rains, the following extract from the late report of Dr. A. W. Perry, chemist to the Board of Health, will show:

"A gutter the length of one square—say three hundred (300) feet, three (3) inches deep, and fifteen (15) inches wide, contains about six thousand (6,000) pounds of semi-fluid mud, of which twenty-three (23) per cent. is solid matter. This, by the figures of the above analysis, contains sixty-three (63) pounds of animal matter, and four hundred and twenty (420) pounds of vegetable matter.

"Four different samples of foul mud (gutters) were examined, with the following results:"

No.	Dry residue weight per cent.	Per cent. of animal matter.	Per cent. of vegetable matter.	Amount contained in the two gutters along one block.	
				Animal matter pounds.	Vegetable matter pounds
1	23	4.50	29.50	126.00	412
2	23	3.80	30.20	106.40	422
3	23	1.81	26.20	59.60	366
4	23	1.38	26.60	36.60	372

Comment is unnecessary.

SUB-SOIL WATER.

The universal opinion in New Orleans has been that the varying distance of its sub-soil water from the surface, was entirely dependent on the height of the river.

Daily observations continued throughout the year 1873, corroborate those of former years, showing that the oscillations of the ground water are independent of the rise or fall of the river, and are coincident with the presence or absence of rain-fall. They are not believed to have causative connection with the rise, prevalence, or decline of cholera, but have an interest as being a coincidence of the rain-fall, which seemed to exercise control over the cause of disorder.

There seems to be good reason to accept the rain-fall of May, as largely efficacious in checking the progress of the disease, and the continuous rains thereafter, as having removed its cause, or at least, as having been coincident with that removal.

The rain-fall of May 5th, was eight (8) inches. The total rain fall of the month, 21.87 inches

Statements have been made that New Orleans owed its comparative exemption from cholera—first, to its having been put into a thorough state of cleanliness and disinfection previous to its appearance; and, second, to the energetic "*stamping out* (so-called) measures employed by the Board of Health.

The Board of Health is accustomed to begin an inspection of all premises of the city, in the early days of January, proposing to have all vaults emptied, all yards cleaned, etc., by May 1st to 15th, and thereafter to maintain such repeated reinspections of those portions of the city in the worst sanitary condition, as is practicable.

This work of inspection and re-inspection is done by members of the Metropolitan police force, detailed to duty with the Board of Health and under its orders. The police force being a part of the State militia, is liable to be re-called in periods of public emergency. Such emergency occurred at the close of 1872, and continued into 1873, and in consequence of the withdrawal of the force, this house-to-house inspection, and general yearly cleansing, was not commenced till the last of March. It is the opinion of the Board of Health, that had its sanitary operations not been thus interfered with, cholera might have been much less general, and less fatal.

Therefore the statement that a remarkably favorable sanitary condition of the city existed antecedent to the date of the appearance of cholera, is incorrect.

After the disease was recognized as having a striking likeness to epidemic cholera, disinfection was practiced in all cases coming to the cognizance of the Board of Health. A circular, through the public journals, was issued to the citizens, giving instruction on disinfection, and many physicians took all precautions against the disease, by the usual modes of disinfection of excreta, etc. Others took no precaution whatever, therefore, in these and those other hundreds of cases where no physician was called, and no precautions practiced, there existed sources of infection ample to have poisoned the whole community and created a general epidemic.

Disinfection in the cases of cholera can scarcely be credited with the escape of New Orleans from universal pestilence.

NATURE OF THE DISEASE.

The doubt that existed in the minds of medical men as to the nature of the disease, is in some degree set forth by the diverse nomenclature employed in the certificates of death given during the first few weeks of the prevalence of the disease.

As, for example—

Cholera morbus.
Cholera spasmodica.
Cholera sporadica.
Cholera nervous.
Cholera asphyxia.
Cholera.
Cholera nostra.
Apparently cholera.

Cholera Asiatica, appearing but infrequently.

Of the first eighty deaths, forty-six received certificates of death by cholera morbus.

Even at this time the opinion of the physicians of New Orleans is divided upon the subject.

Medical men connected with hospitals, seeing few save fatal cases, unhesitatingly pronounce the disease Asiatic cholera.

A large portion of New Orleans physicians consider it not to have been Asiatic cholera. All, however, agreeing that in fatal cases no distinction can be drawn between the cholera sporadica of 1873, at New Orleans, and genuine Asiatic cholera.

The few holding that when no distinction exists, there is no difference, unhesitatingly pronounce the disease Asiatic cholera, and suggest that importation is not necessary, that the germs of that disease are always and everywhere present, only awaiting favorable circumstances to multiply and produce the effects customarily experienced from the general and abundant presence of cholera poison.

Most physicians, however, although admitting the difficulty of differential diagnosis in fatal cases, consider that the character of the disease, its course and progress as a whole, war-

rant the belief that it was not Asiatic cholera. Some of the considerations influencing them to such belief are—

1st. The non-importation of the disease.

2d. That no evidence of portability or infection were exhibted in the city, where every facility existed for ascertaining its natural history.

3d. The appearance of the disease at many localities remote from each other, and from anything that could be considered a common cause, and in all parts of the city, at dates synchronous or nearly so.

4th. The small mortality of those attacked with vomiting and purging, during the presence of the disease; attacks simlar to which, during the presence of former epidemics, have customarily proved the beginning of that usually fatal disor. der.

The death rate of persons thus attacked, is variously estimated at from three to twelve per cent.

5th. The fact that so general diffusion of the disease existed, without resulting in a great epidemic.

Had the disease possessed the portability and infectiveness attributed to Asiatic cholera, its course and results would have been the reverse of the actual occurrence.

6th. The fact of the long continued presence of the disease in New Orleans, without flaming up to epidemic proportions, shows absence of the peculiar characteristics of Asiatic cholera, as generally admitted.

The disorder seemed endemic, not epidemic.

7th. Cholera occurred at the season of the year when intestinal disorders appear in New Orleans, April being the diarrhœa month of the year.

The city's small mortality of cholera infantum occurs also in the first half of the year.

The prevalence of cholera at the same period of 1873 may be viewed as the natural tendency of that portion of the year, exaggerated into serious and deadly, and somewhat general disease, by the presence of local poison, engendered by filth and magnified by unusual meteorological conditions.

8th. The amenability to treatment of what were in appearnce serious cases.

Under the hypodermic use of morphine and atropia, or morphine alone, immediate relief and ultimate recovery was the rule. Under treatment by calomel and quinine, recovery also seemed speedy. Also, under domestic remedies, many cases were restored to health.

A large number of persons were taken ill with profuse vomiting and purging, sometimes preceded by faintings and cramps, with great subsequent weakness, who recovered without any aid whatever, save the vis medicatrix naturæ.

9th. The small number of multiple cases is considered an evidence of its non-infective, or epidemic character.

10th. The disease was not carried to our neighbors.

With Mobile, constant intercourse continued at the rate of two passenger trains per day, each way, with numerous freight trains, and to the hamlets along the Mississippi Sound three trains per day, each way.

Neither at these small villages or in Mobile did cholera occur.

Dr. G. A. Moses, late Secretary to the Board of Health, Mobile, says:

MOBILE, August 29th, 1873.

DR. RUSSELL, *Secretary:*

DEAR SIR—As there is no Board of Health here now, excepting a mere consulting body, without authority or means of obtaining information other than what is voluntarily offered it, I cannot answer your request in regard to cholera, *officially*, but I think the following is correct:

This summer (of 1873) has been remarkably free from diarrhœal disease of any form, and, as a rule, those cases which have occurred, have been very easily managed. This is the testimony of all the practitioners.

There were some cases of cholera morbus, but not more than usual, and there were two deaths of bagmen, which were thought by the attendant physician to be cholera. These were the only suspected cases.

Mobile has never had more cholera than that. It seems to be one thing that cannot live here.

* * * * *

Very truly yours,

(Signed,) G. A. MOSES, M. D.

With Galveston, daily communication is made eighty miles by rail; the remainder by steamer. At Brashear, the point of transfer by land to steamer, three cases occurred, several weeks after the appearance of the disease at New Orleans, and simultaneously with its appearance along the bayous, of whose travel it forms the centre.

In reference to the health of Galveston, Dr. Geo. W. Peete, Health Officer at that city, says:

"There has not been a single case of cholera in this city since 1866, when it was brought here by United States troops, from Governor's Island, New York, in the early part of September, of that year. It soon disappeared, causing the death of about eighty (80) soldiers, and a few citizens."

With Jackson and Canton, Mississippi, and other towns along the Jackson and Great Northern Railroad, New Orleans has frequent communication day and night. Cases of persons sick with cholera (from New Orleans), may have occurred at these points, but no implantation and decided spread of cholera took place there.

Louisville has daily intercourse with New Orleans, yet, Louisville escaped infection, whilst communication with Nashville is indirect and comparatively infrequent.

Taking therefore all the facts mentioned into careful consideration, the natural history of cholera sporadica of 1873, at New Orleans, seems to most of its observers to lack the characteristics hitherto deemed, perhaps, pathognomic of epidemic Asiatic cholera, if not its essence.

The following letter of Dr. Allen, relating to the appearance of cholera in St. Mary's Parish, is of interest in the discussion of the origin of that disease in Louisiana:

CENTREVILLE, Dec. 25th, 1873.

DR. C. B. WHITE, *President Board of Health:*

SIR—In answer to your inquiries in reference to cholera in this vicinity, I am happy to say that there was really very little in this parish, save on one plantation—that of Mr. Daniel Thompson. Although this plantation is one of the best cultivated, best drained, and generally best managed places in the parish, still there were forty (40) cases of cholera among its

employees, during a period of about three weeks, nine (9) of which were fatal. In some of the cases a remarkable malignity was exhibited. I find from my notes that Rhoda White, Mary Jackson, Andrew Jackson, and Alexis Frederick, all died within six hours after attack; were apparently well at breakfast time, and dead by 3 o'clock in the afternoon.

I made a most searching and exhaustive examination of all the circumstances attending the outbreak of the endemic, but was unable to discover either a local or imported cause, sufficient to account for it. Everything in the way of dwellings, outhouses and stables, was exceptionably clean, neither could I detect any impurity in the food or water, generally used on the place.

One more fact I will mention that may have an indirect, or rather negative bearing, viz: the adjacent plantations during the prevalence of cholera on Mr. Thompson's place, kept a pretty rigid quarantine; while one (that of Messrs. Penro and Dubraca), by my advice, had the houses in which their laborers lived, thoroughly cleansed, white-washed, and disinfected with carbolic acid.

On the latter place I treated two cases of cholera (husband and wife), who had attended funerals and spent some hours on Thompson's place. With this exception, none of the neighboring plantations had the disease.

* * * * * *

Very respectfully,

SHAKESPEARE ALLEN, M. D.

YELLOW FEVER.

It is the desire of the Board to make careful study of the cases of this disease which first appear, and place the result upon record, that the facts sufficiently accumulated may, in the future, be submitted to an analysis, which shall close the questions still open: Is yellow fever an indigene? Is it a tropical production, occasionally introduced, and thereafter surviving a series of mild winters? Is it annually introduced and but occasionally finding the circumstances favorable to vigor-

ous multiplication, and consequent disease and death, or exists it at the same time indigenous and imported?

In accordance with the idea just given, the facts connected with the appearance, progress and decline of the disease this year, have been carefully collected and analysed, and are related in the following account of the yellow fever of 1873, prepared by Dr. S. C. Russell, Secretary of the Board:

YELLOW FEVER.

Without doubt, the first case of yellow fever, which occurred in the Mississippi Valley, during the year 1873, was in the person of José Maria Arua, mate of the Spanish bark "Valparaiso." This bark left Havana June 15th in ballast, and arrived at Quarantine Station, on the Mississippi river, June 24th, and was detained there two days, after which she was released and permitted to come to the city, arriving June 26th. She was docked at the head of Second street, pier 48, in the Fourth District, two miles above Canal street, the business center of the city. Above her lay several steamboats, the first of which was the "Belle Lee," above her the "Wm. S. Pike," and several Red River boats. The mate, Arua, was taken sick with yellow fever on the 4th July, and was carried, after being treated two days on the ship, down to the Third District, a distance of three miles, where he died on the 8th of July. His first physician, Dr. Manaigra, pronounces it yellow fever, and as such, reported it to the Board of Health. Some members of the Board saw him after his removal and unhesitatingly agreed that it was a true case of yellow fever. Dr. Devron gave his certificate as such. The premises where Arua died, No. 484 Moreau street, were thoroughly disinfected. With the atomizer of Dr. Perry, pure carbolic acid spray was thrown on the walls, and the floors were sprinkled with it, the neighboring yards and sinks were liberally treated with crude carbolic acid and zinc-iron. As soon as the case of Arua was known to the Board of Health, the bark was several times fumigated at her wharf. No other case occurred either in the house where Arua died, or on the bark. The captain (Rosas) claims that the balance of his crew were old acclimated Spaniards, and such was their appearance; he also claims, that Arua took his sickness

from New Orleans. There may be some reason for his suspicions.

Case No. 2—Harry West, aged 35, left his boarding house on Victory st., Third District, three miles below the bark "Valparaiso," and several squares from where Arua died, though on the same day (July 8th) and shipped on the dredge boat "Essayons," working at the mouth of the river, where he was taken sick July 10th, and was brought up to the city, entered the Charity Hospital, July 10th, and died July 15th.

There was no known connection between this case and any other case. West had been drinking freely before shipping on the Essayons. No other case occurred in his boarding house or on the Essayons. His boarding house was thoroughly treated with disinfectants, as was also the Essayons. This may be considered a doubtful case.

Case No. 3—Was that of Edward Hynes, mate of steamer Belle Lee. It will be remembered that the Belle Lee was the first boat above the Valparaiso (distant about 100 feet). Hynes was taken sick July 12th, and died on the boat, July 20th, with black vomit and suppression of urine. In the mean time, July 18th, the Belle Lee was sent away from the wharf at the head of Third street. Her captain agreed to take her up to some uninhabited place, about the river bank, and after unsuccessfully searching for a suitable place, he took her to the river front of the lower portion of the Sixth District, between Louisiana and Napoleon Avenues. At this point, Aug. 10th, appears a new focus of infection, in which there were 37 cases and 25 deaths.

The hygienic treatment of this portion of the district, will be more fully spoken of in Dr. Kellogg's annual report of the Sixth District; as also the different cases in the different districts by the respective sanitary inspectors.

Case No 4—Thomas Meade, carpenter, on steamer. Wm. S. Pike (1st boat above the Belle Lee), was taken sick July 28th, seven days after the death of Hynes (the last case), and recovered. His lodgings were at the corner of Fifth and Water streets.

Case No. 5—Joachim Domingoes was employed in loading the bark Valparaiso, acting as interpreter between the crew

and the working party on shore. He was taken sick at No. 21 Fifth street, near the levee, on the 28th of July, and recovered, more fortunate than his nurse, Tomasa Roderigues (case 22d), who sickened in the same house, and died in the Charity Hospital, August 19th.

Case No. 6.—Charles Haasse, painter, of steamer W. S. Pike, was taken sick July 29th, and died in Hotel Dieu August 7th.

Case No. 7—J. E. Ketchum, assistant engineer on the steamer W. S. Pike, was taken sick July 30th, and recovered.

Case No. 8—Sam. Gatewood, carpenter, of the Belle Lee, was taken sick July 31st, and died at 506 Rampart street, August 4th (one mile from the infected district). This infected locality, at that time (August 1st) extended on the river front, only from First to Fifth streets, back only one half square. Gatewood's house, as was the case of all others (where there had been a case of yellow fever), was thoroughly disinfected, and no other case (save one, and that doubtful—case 13th) occurred in that neighbourhood.

Case No. 9—John Geming was attacked August 1st, and died August 5th. He lodged one-half square from Meade (case 4th), in a filthy, damp place. He worked in the Sixth District, opposite the new berth of the Belle Lee, where Hynes (case 3d) died.

Case No. 10—James Mahoney, aged 17 years, a barkeeper on Tchoupitoulas street, opposite the Valparaiso, was taken sick August 6th, and recovered in the Charity Hospital.

Case No. 11—A Chinaman, taken sick August 7th, and died in Charity Hospital, August 15th. This was a doubtful case; no known connection with any other case.

Case No. 12—Conrad Hothig, painter, on Belle Lee, was taken sick August 8th, and died at 58 Seventh street, August 14th.

Case No. 13—Eliza Leitch, 7½ years of age, taken sick August 9th, and recovered. She was receiving music lessons in the house where Gatewood (case 8th) died. This is regarded as a doubtful case, as were several others in her neighborhood, and about Dryades market.

Case No. 14—Simeon Murray was taken sick August 9th, and died August 15th. He had visited steamers Belle Lee and Pike,

worked on the levee, and was the first case of yellow fever in Algiers (Fifth District). His wife died subsequently, on a boat, near Memphis, on her way to St Louis.

Case No. 15—Joseph Railey was taken sick August 15th, and recovered. He was accustomed to visit the levee often; his house (No. 185 Rosseau street) was less than two squares from the Lee and Pike; this street was filthy and impassable for the disinfecting carts at this time. Mrs. Railey, his wife, died ot the fever at the same house, September 2d.

Case No. 16—Terrence Cochrane, mate of the bark W. G. Putnam, was taken sick with yellow fever, August 15th, and died in the Charity Hospital, August 21st. The bark Putnam was at this time occupying the same berth as the Valparaiso had previously, viz: Pier 48 in the Fourth District. This bark lay for a few days, after her clearance, at Post 23, of the Third District. There her captain was taken sick, and two of the crew; one, Joseph Thompson, died in the Charity Hospital, September the 8th. This became a new source of infection. Every vessel docked there, and at the neighboring piers, had fever among their crews. The fever continued till the 2d of November, when Officer Newman, with a large force, thoroughly cleansed and disinfected the wharves and batture under, and about them, when the fever entirely ceased.

Case No. 17—P. Crawford, three months from Ireland, was taken sick August 15th, and recovered. Crawford lives one door from Railey (case No. 15), at No. 187 Rousseau street, which was, at that time, a filthy mud hole.

Case No. 18—Denis Donohue was taken sick August 15th, and died on the 19th. Donohue lived two miles from the infected district, and was considered a doubtful case. There was no known connection with any other case; he died at the intersection of Annunciation and St. Thomas streets.

Case No. 19—Julius Peterson, corner of Levee and Ninth streets, was taken sick August 15th, and died in the Charity Hospital, August 21st. It will be seen by the location of the last case and case 12th, that the infected district has extended up the river to Ninth street and back, less than two squares from the river.

Case No. 20—John Canroby, aged 17 years, was cabin-boy on the bark Alcyon, Pier 34, First District, opposite some filthy and stagnant ponds. He was taken sick August 15th, and died in the Hotel Dieu, August 19th; he had visited the infected barks already mentioned.

Case No. 21—J. D. Huisson, a boy five years of age, was taken sick August 19th, and died on the 22d at No. 191 Rousseau street, three doors from the Railey family (cases 15 and 41). These cases were in a row of small and ill-ventilated houses, on an exceedingly filthy street—the centre of nearly all of the cases in the Fourth District, at this time.

Case No. 22—Was that of Tomassa Roderiques, nurse to Domingoes, case 5th. She died in the Charity Hospital, August 19th—sick only two days.

Case No. 23—Miss Read, seven days from Boston, was taken sick August 19th, and recovered. She lived only one square from the Levee in the Fourth District, Philip near Tchoupitoulas streets.

Case No. 24—Wm. P. Ross, No. 13 Jackson street, near the Levee—less than two squares from the Valparaiso—had business with the shipping—was taken sick August 19th, and recovered.

Case No. 25—Maria Koehber was taken sick August 19th, near the corner of First and Tchoupitoulas streets, near the Levee, and died at 320 Poydras street; this latter place was disinfected, and no other case of fever occurred in that neighborhood.

Case No. 26—Was that of Wm. Irwin, in the same square with Ross and Casar—cases 24 and 27. He was taken sick August 20th, and died at No. 56 Josephine street, August 23d.

Case No. 27—Christian Casar, No. 19 Jackson street, two doors from Ross (case 24th), was taken sick August 21st, and died August 25th; he worked in a cooper-shop, in the Sixth District, opposite the Belle Lee.

Case No. 28—Otto Stein, nearly opposite Irwin (case 26th), on Josephine street, was taken sick August 25th, and died on the 27th, in the Charity Hospital; disinfection was now thoroughly practised in this district, under the experienced management of Dr. A W. Perry.

Case No. 29—Was that of Capt. W. R. Greathouse, of the steamer B. L. Hodge. This boat had not been in the infected district. Capt. Greathouse was taken sick on his boat, August 23d, and died at his house on Magazine street, near Louisiana avenue, August 29th. Subsequently, there were three deaths from yellew fever on this boat. As Capt. Greathouse was a genial gentleman, and mingled much with steamboatmen, he probably had visited some of the infected boats, or perhaps, some case of fever from them.

Case No. 30—Madeline Herman, living at No. 18 First street, near the Levee, was taken sick August 24th, and died in the Charity Hospital, August 30th.

Cases Nos. 31 *and* 32—Were in Algiers; children of H. C. Green. These children were taken sick August 25th; one recovered, the other died September 1st. The father (case 140) was afterwards (September 13th) taken sick, and died of yellow fever September 16th. These cases were nearer the centre of cases in Algiers, than was Simeon Murray, case 14th.

Case No. 33—Barbara Gehl was the first case of yellow fever that *died* in the Sixth district this season. She was taken sick Aug. 26th and died on the 29th, on Tchoupitoulas street, between Marengo and Milan sts., opposite the Belle Lee. The fever of the Sixth District extended but a few squares. There were only 37 cases and 25 deaths.

This district, under the management of Dr. G. Kellogg, was thoroughly treated with crude carbolic acid and other disinfectants, and the disease entirely disappeared, the last case dying Sept. 27th. As there had been no frost at that time, and there was no lack of unacclimated material, why was the progress of the disease arrested at this point, unless by the agencies above mentioned? Eighty-four barrels of crude carbolic acid, besides other disinfectants, were sprinkled in the streets, yards and privies of that section of the city.

Some vessels in the months of August, September and October were docked in the same locality that the Valparaiso had occupied in the earlier part of the season; their crews suffered considerably from the fever. The bark Putnam was one of these; case 16 was her mate. The captain was also sick with the fever, and recovered after the bark moved down to the Third

District. Several other ships also, after discharging their cargoes in the warehouses of the Fourth District, at piers 49, 52, 56 and 58, were taken down to the Third District to piers 23, 24, 25 and 26, three miles below; there they communicated or conveyed the fever to the wharves of that locality. Some of these ships lost heavily; one had seven men sick, another four. These two lay at the same pier, viz: pier 23 of the Third District. It was not until Nov. 2d, when the fever was finally eradicated by the persistent efforts of sanitary officer Newman, who cleaned up the wharves and batture, disinfecting both, as well as the surrounding neighborhood.

It is very difficult to dislodge this disease from under and about the wharves, where it is partially protected from the air and there is an abundance of moisture and heat; besides, it is difficult of access and filthis carried under them by currents and eddies. Nearly all sailors are taken to public hospitals and death too frequently occurs. Of 226 deaths by yellow fever this season, 98 died in the hospitals, and 63 recovered. Moving the sick in furniture wagons over rough pavements causes many a sick man to succumb, who might safely go through the ordeal under more favorable treatment. Many patients taken from warm beds, exposed to the cold air, carted through the streets, die soon after admission and sometimes on the way there. From many lodging houses the sick are sent away to hospitals, as soon as the proprietor, or his affrighted guests think he *may die* of the fever.

The fever in the Fifth District (Algiers) commenced, as has been stated, Aug. 9th (case 14, already given) and continued until Oct. 10th, during which time there were 37 cases and 16 deaths. Like the fever in the Fourth and Sixth Districts, it showed an extraordinary malignancy; in one house the entire family of three died of it in a few days. No direct origin of this fever could be traced (except that of Murray, case 14) and he was somewhat removed from the other cases in Algiers. It is probable it was brought from the Fourth District by some levee laborers. This district, like the Fourth and Sixth, was thoroughly disinfected by the sanitary officer, under the direction of the President of the Board of Health. One hundred and thirty-one barrels crude carbolic acid were used, and, as it

is stated above, the fever entirely disappeared on the 10th of October.

There were also some scattering cases of fever in the Second District; these were treated as were those of other districts, viz: every locality where a *case* of *fever* occurred was thoroughly disinfected, until the fever disappeared, as will be seen by the able report of Dr. Clark, sanitary inspector of the Second District.

The history of the yellow fever in the city requires that all the important circumstances known should be mentioned. It is reported, that four deaths of yellow fever occurred on the ship Ada Oulton when off the Tortugas, July 18th and 20th. The Ada Oulton left New Orleans the day Arua died (July 8th). She lay at or near the same pier as did the Valparaiso. If so, did the Ada Oulton get her fever from the Valparaiso, or did the germ under or about the wharves affect both ships alike? Might it not have found a suitable nidus under the wharf, where, under favorable circumstances, it manifested itself on nearly every ship or boat of that locality? The weather was at that time extremely warm and favorable to the propagation of the disease. It may be mentioned here, that the fever broke out last season, four squares from where the Valparaiso lay this year, and then there was not the slightest evidence of importation; in fact, the first case of 1872 was positively known to have been sporadic, yet there were 39 deaths following it during the season.

The location of the fever this year was in the non-malarial portion of the city, mostly near the river, while the malarial section is near the rear, toward the swamp or marsh.

Of the thirteen officers, detailed by the Metropolitan Board to assist in sanitary work and disinfecting, no one took the fever, though all save one was unacclimated. Did not the constant use of disinfectants give them immunity from this disease? They were all exposed to it, day after day, nearly five months.

No colored persons were affected by the yellow fever this year, though they have suffered severely from small-pox and cholera.

Of the 226 deaths by yellow fever, only 68 were Americans, 58 were Germans, 29 Irish, 20 English, 10 French and 41 from other countries. Of the 388 cases, only 68 were females. Deaths and cases by months were as follows: July, 8 cases, 3 deaths; August, 40 cases, 19 deaths; September, 183 cases, 108 deaths; October 135 cases, 79 deaths; November 22 cases, 17 deaths. The above were all that were reported to the Board of Health, though, probably, 10 per cent. of all the recoveries were not reported. This would foot up as follows: 388—226=162+16=178 recoveries; over 50 per cent. died.

Many physicians did not report their cases until the strongest evidence of dissolution were apparent; this, too, in defiance of the law requiring them to report all cases of contagious or infectious disease within twenty-four hours after cognizance.

The average duration of sickness in case of death was five days.

29 were under ten years of age.
28 " between ten and twenty years of age.
94 " " twenty and thirty "
48 " " thirty and forty "
22 " " forty and fifty "
5 " over fifty years.

Excavations on streets seem to have had no effect on the spread of the fever this year. Several streets were torn up to re-lay and build railroads, and no single case of yellow fever occurred on any such streets.

Cases of yellow fever introduced from Shreveport and Memphis were no more malignant than our own. It manifested the same symptoms.

The neglect of sanitary measures and use of disinfectants made the only difference in malignancy between the fever of Shreveport and Memphis and the fever of New Orleans and Mobile.

Malarial fevers have prevailed during the summer. In five months during the prevalence of yellow fever, there have been 348 deaths from congestive, bilious, pernicious, paludal, intermittent and remittent fevers.

There have been many severe cases of fever of a hemorrhagic character among children. These were at first called by inex-

perienced physicians, yellow fever, but, on close observation, it was found to differ considerably from true yellow fever, though many cases showed the strongest hemorrhagic tendency, even from the stomach. Recoveries from this were very frequent, and deaths very few. This fever is called by Dr. Foget "hemo-gastric paludal fever." The full one-half of the population of this city have been afflicted with "Dengue" (Myalgia). Relapses from this fever frequently occur, and are often severe. Deaths have occurred from "Exhaustion from Dengue," and some cases, after many relapses, have assumed the appearance of yellow fever, and have died.

The Board of Health gave special permission to the owners of the steamship Clinton to run between Havana and the Quarantine Station, during the summer. Her agents agreed to employ only an acclimated crew and to discharge her cargo at Quarantine, to be brought to the city on lighters, while the ship should return for another cargo. She made two trips only, leaving five men at the Quarantine sick with yellow fever, three of whom died. It is a remarkable *fact* the cattle boats of the same line, running between Havana and Galveston had *no* single case of yellow fever among their crews and passengers. May not the ammoniacal odor from the cattle keep the poison out of the hold of the ship. As to detention at Quarantine, time *only* is of no avail. The yellow fever germ only accumulates in power in the closed-up ship. Some plan must be devised to root it from the ship thoroughly and effectually, especially from those vessels arriving from ports known to be strongly affected, as was Havana this summer. Commerce, even, should be discouraged from such a place, for a time.

If the sprinkling of carbolic acid and other disinfectants do not always entirely *destroy* the germ of yellow fever, it so weakens its influence, that those only much predisposed to it, take the disease, or those let down to it by other diseases, viz: Relapses from dengue, diptheria, etc. This was the case in this city this season, in sections where the yellow fever prevailed. Where there was no hygienic measures taken, the fever manifested itself with great power. No single colored person was attacked in New Orleans with yellow fever, but many died of it, in Shreveport this year. Is it not fair to believe that

when hygienic measures are fully understood and carried out, that epidemics of small-pox, cholera and yellow fever will be very rare?

The Board of Health have met with considerable opposition in the matter of disinfection. Some physicians were unwilling to report cases of fever, fearing their patients and friends should be annoyed by the disinfecting corps—preferring the horrid fetor of cess-pools and privies to zinc-iron and carbolic acid; thus allowing the disease to have its unrestricted course. This may be honest, but it looks like catering to the whims and caprices of their patrons.

In reviewing the above cases, it seems that twenty-seven of the thirty-three cases given, have a close connection with the bark Valparaiso, or with the cases in her immediate neighborhood. Of the six other cases, Nos. 2, 11, 18, 29, 31 and 32, the first three are expressed *as doubtful*, while the last three, in all probability, had their origin, as did the twenty-seven just alluded to.

In conclusion, it would appear that the fever of 1873 was imported from Havana, in the bark Valparaiso, though she was detained for a short time and fumigated at the Quarantine Station.

The following is a list of deaths and cases:

Tabular List of Cases of Yellow Fever, which occurred in New Orleans, during the Summer of 1873, *arranged according to date when taken sick.*

No. of Case	Date when taken sick.		NAMES.	LOCALITY WHERE TAKEN SICK.	RESULT.
			JULY.		
1	July	4	Jose, M. A.	On bark Valparaiso.	Died.
2	..	10	H. W.	" Essayons.	Died.
3	..	12	E. H.	On steamboat Belle Lee.	Died.
4	..	27	T. M.	Corner Washington and Water sts.	Recovered.
5	..	28	J. D.	No. 21 Washington street.	Recovered.
6	..	29	C. M.	Steamboat Pike.	Died.
7	..	30	J. E. K.	" "	Recovered.
8	..	31	S. G.	No. 506 Rampart street.	Died.
			AUGUST.		
9	August	1	J. G.	No. 931 Tchoupitoulas street.	Died.
10	..	6	J. M.	No. 178 Levee street.	Recovered.
11	..	7	Y. A.	No. 10 Victory street.	Died.
12	..	8	C. H.	No. 58 Seventh street.	Died.
13	..	9	E. L.	No. 524½ Dryades street.	Recovered.
14	..	9	S. M.	Peters, between Seguin and Robin.	Died.
15	..	13	J. N. R.	No. 185 Rousseau street.	Recovered.
16	..	13	O. C.	Ship W. G. Putnam.	Died.
17	..	15	P. C.	No. 187 Rousseau street.	Recovered.
18	..	15	D. O'D.	Cor. Annunciation and St. Thos. sts	Died.
19	..	15	J. P.	Cor. Ninth and New Levee streets.	Died.
20	..	15	J. C.	Bark Halcyon.	Died.
21	..	15	J. D. H.	No. 191 Rousseau street.	Died.
22	..	17	Miss T. M.	No. 21 Washington street,	Died.
23	..	19	Miss R.	Philip. bet. Tchoup. and Rousseau.	Recovered.
24	..	19	W. P. R.	No. 13 Jackson street.	Recovered.
25	..	19	M. K.	No. 825 Tchoupitoulas street.	Died.
26	..	20	W. I.	No. 56 Josephine street.	Died.
27	..	21	C. C.	No. 19 Jackson street.	Died.
28	..	23	O. S.	No. 27 Josephine street.	Died.
29	..	23	W. R. G.	No. 931 Magazine street.	Died.
30	..	24	M. H.	No. 18 First street.	Died.
31	..	25	G.	Corner Alex and Elmira streets.	Recovered.
32	..	25	H. C. G.	" " "	Died.
33	..	26	B. G.	Tchoup., bet. Milan and Marengo.	Died.
34	..	26	W. A.	Corner Washington and Tchoup.	Died.
35	..	27	I. T.	Bark W. G. Putnam.	Died.
36	..	28	W. M. B.		Died.
37	..	28	I.	No. 16 Jackson street.	Recovered.
38	..	28	E.	Cor. Rousseau and Saraparu sts.	Recovered.
39	..	28	A. N. C.	Vallette bet. Alix and Eliza.	Died.
40	..	28	Mrs. C.	" " "	Recovered.
41	..	28	M. E. R.	No. 185 Rousseau street.	Died.
42	..	29	C. L.	Cor. Harmony and Chippewa sts.	Died.
43	..	29	W. L.	Water street, bet. 3d and 4th sts.	Died.
44	..	30	W. V.	Chestnut and Vallence streets.	Died.
45	..	31	T. H.	Ship W. G. Putnam.	Recovered.
46	..	31	J. N.	Cor. Austerlitz and Water streets.	Died.
47	..	31	W. B.	No. 64 Girod street.	Died.
48	..	31	Mrs. L.	No. 46 Louisiana avenue	Died.
			SEPTEMBER.		
49	Sept'r	1	M. Q.	No. 17 Spain street.	Died.

List of Cases of Yellow Fever—Contined.

No. of Case	Date when taken sick.	NAMES.	LOCATION WHERE TAKEN SICK.	RESULTS.
		SEPTEMBER.		
50	Sept'r 1	W. M.	St. Charles, near Gravier street.	Died.
51	.. 1	J. M.	No. 1323 Tchoupitoulas street.	Died.
52	.. 1	P. M.	Rous., bet. Jackson and Josephine.	Died.
53	.. 1	C. S.	No. 11 Elysian Fields street.	Died.
54	.. 1	L. M.	No. 394 St. Charles street.	Died.
55	.. 2	J. D.	Corner Chippewa and Ninth sts.	Recovered.
56	.. 2	Miss A. V.	Saraparu and Tchoupitoulas sts.	Died.
57	.. 2	J. G.	Not stated.	Died.
58	.. 3	W. G.	No. 937 Magazine street.	Recovered.
59	.. 3	A. W.	No. 4 Market Hall.	Died.
60	.. 3	D. A.	No. 456 Rampart street.	Died.
61	.. 3	D. C.	Corner Dauphine and Port sts.	Died.
62	.. 4	W. A.	Constantinople, b.Jersey&Tchoup	Died.
63	.. 4	L. V.	Eliza, bet. Chestnut and Elmira.	Died.
64	.. 4	Mrs. W.	No. 77 Laurel street.	Recovered.
65	.. 4	E. H.	No. 475 Chippewa streets.	Died.
66	.. 4	P. C.	Victory, bet. Mandeville and Spain	Died.
67	.. 4	M. G.	St. And, b. Rampart and Franklin.	Died.
68	.. 4	Mrs. J. P.	Jersey, b. Const'ple and Austerlitz	Died.
69	.. 4	M. V. S.	Levee, bet. Marengo and Milan.	Died.
70	.. 4	R. R.	Annunciation st., car station.	Died.
71	.. 4	E. V.	Morales and Adams.	Recovered.
72	.. 4	L. S.	Homeless.	Died.
73	.. 5	W. P.	Steamboat Belle Rowland.	Died.
74	.. 5	W. B.	Corner Jackson and St. Thomas.	Died.
75	.. 5	T. Q.	No. 17 Spain street.	Died.
76	.. 5	W. W.	Tchoup., bet. Milan and Marengo.	Died.
77	.. 5	J. W.	" " "	Died.
78	.. 5	J. B.	Cor. Fulton and Jackson streets.	Died.
79	.. 5	J. S.	Tchoup., bet. Adele and Josephine	Recovered.
80	.. 6	J. L.	Algiers.	Died.
81	.. 6	B. M.	St. Mary, near Magazine street.	Recovered.
82	.. 6	R. R.	Corner Camp and Poydras street.	Recovered.
83	.. 6	J. A. W.	Johnson and Laurel streets.	Died.
84	.. 6	D. A.	St. And., bet. Derbigny and Rom.	Died.
85	.. 6	D. C.	No. 52 Annunciation street.	Died.
86	.. 6	Mrs.G.D.D.	St. Mary, b. Laurel and Annun.	Recovered.
87	.. 6	W. L.	Steamboat Hodge.	Died.
88	.. 7	C. E. J.	Peters, b. Verrett and Bartholmew	Died.
89	.. 7	H.	Corner Fourth and Chippewa sts.	Recovered.
90	.. 7	B.	No. 92 Washington street.	Recovered.
91	.. 7	J. F.	No. 476 Chippewa street.	Recovered.
92	.. 7	J. P.	Lev. b. Austerlitz and Constan'ple	Died.
93	.. 7	Mrs. J. F.	Corner Jersey and Austerlitz sts.	Recovered.
94	.. 7	M. G.	Nap. Av. and Tchoupitoulas st.	Died.
95	.. 7	Mr. K.	Corner Fulton and Fourth.	Recovered.
96	.. 8	J. B.	Corner Jackson and St. Thomas.	Recovered.
97	.. 8	Mrs. A. J.	Peters, b. Verrett and Bartholm'w.	Died.
98	.. 8	J. D.	Constantinople, between Jersey	Recovered..
99	.. 8	V.L.	and Tchoupitoulas street.	Recovered.
100	.. 8	M. H.	78 Annunciation street.	Died.
101	.. 8	P. M. A.	Algiers.	Died.
102	.. 8	Mrs. R. C.	187 Rosseau street.	Died.
103	.. 8	H. C.	187 Rosseau street.	Died.

List of Cases of Yellow Fever—Continued.

No. of Case	Date when taken sick.	NAMES.	LOCALITY WHERE TAKEN SICK.	RESULT.
		SEPTEMBER.		
104	Sept'r 8	J. W.	Milan and Tchoupitoulas streets.	Died.
105	.. 8	A. Y.	Austerlitz, bet. Tch'p. and Water.	Died.
106	.. 8	W. F.	Marengo and Jersey.	Died.
107	.. 8	C. H.	No. 42 Adele street.	Recovered.
108	.. 8	R.	No. 67 Gaiennie street.	Recovered.
109	.. 8	J. D.	Atlantic and Evalina.	Recovered.
110	.. 8	M.	" "	Recovered.
111	.. 9	W. P.	Chestnut, bet. Alix and Eliza.	Died.
112	.. 9	J. P. McE.	No. 937 Magazine street.	Recovered.
113	.. 9	H. L.	No. 384 Fulton street.	Died.
114	.. 9	W. J. W.	Cor. Thalia and Clara streets.	Died.
115	.. 10	A. B	Tchoupitoulas, between Milan and	Recovered.
116	.. 10	and child.	Marengo streets.	Recovered.
117	.. 10	A. P.	Lake End.	Died.
118	.. 10	E. C.	Celeste and Levee.	Recovered.
119	.. 10	L. F.	No. 184 Robin street.	Died.
120	.. 10	C. L.	No. 464 Moreau street.	Died.
121	.. 10	R. B.	Homeless.	Died.
122	.. 11	H. J.	Peters, bt. Verrett and Barthol'w.	Died.
123	.. 11	B. K.	Chestnut bt. Laurel and Jersey.	Died.
124	.. 11	J. R.	No. 14 Rousseau street.	Died.
125	.. 11	N. J.	Cor. Philip and Tchoupitoulas sts.	Died.
126	.. 12	Mrs. G.	Vallette, near Eliza.	Recovered.
127	.. 12	Mrs. L.	Peters, bt. Verrett and Barthol'w.	Recovered.
128	.. 12	P. H.	Elmira, bt. Peters and Alix.	Died.
129	.. 12	J. M.	Bienville and Levee.	Died.
130	.. 12	Mrs. A. F. D.	Cor. Ninth and Chippewa.	Died.
131	.. 12	G. O.	No. 50 Fourth street.	Died.
132	.. 12	D. A.	No. 125 Tchoupitoulas street.	Died.
133	.. 12	Miss L.	Sorapura street.	Recovered.
134	.. 12	J. B.	Cor Julia and Magazine streets.	Recovered.
135	.. 12	M. B.	No. 423 Carondelet street.	Recovered.
136	.. 12	J. T.		Recovered.
137	.. 12	E. L. A.	Cor. Marengo and Jersey streets.	Died.
138	.. 12	H. B.	Steamboat Future City.	Recovered.
139	.. 13	A. K.	No. 86 First street.	Recovered.
140	.. 13	H. W. G.	Cor. Alix and Elmira streets.	Died.
141	.. 13	J. A. G.	Chestnut, bet. Alix and Eliza sts.	Died.
142	.. 13	A. A.	Cor. Pacific and Market streets.	Recovered.
143	.. 13	C. K.	Cor. Seventh and Anunnciation.	Died.
144	.. 13	J. S.	Children's Home, Jackson street.	Died.
145	.. 13	F. D.	Steamboat Future City.	Died.
146	.. 13	P. M.	" "	Died.
147	.. 14	P A.	Cor. Verrett and Peter.	Recovered.
148	.. 14	W. W.	No. 25 Jackson street.	Died.
149	.. 14	M. G.	No. 99½ Liberty street.	Died.
150	.. 14	E. B.	4th, bt. St. Charles and Prytania.	Recovered.
151	.. 14	M. B.	" " "	Recovered.
152	.. 14	T. B.	Cor. Conti and Levee.	Died.
153	.. 14	J. F.	Lafayette and First.	Recovered.
154	.. 15	A. M.	Elmira, bt. Alix and Eliza.	Recovered.
155	.. 15	M.	" "	Recovered.
156	.. 15	M.	" "	Recovered.
157	.. 15	H. S.	Morgan's Line.	Died.

List of Cases of Yellow Fever—Continued.

No. of Case	Date when taken sick.		NAMES.	LOCALITY WHERE TAKEN SICK.	RESULTS.
			SEPTEMBER.		
158	Sept'r	15	J.H.	No. 60 First street.	Died.
159	..	15	P.	No. 18 Melpomene street.	Died.
160	..	15	P.	La. Av. bet. Mag. and Constance.	Recovered.
161	..	16	S. C.	No. 19½ Treme street.	Recovered.
162	..	16	R. V.	Cor. Frenchman and Victory sts.	Died.
163	..	16	E. S.	No. 32 Peters street.	Recovered.
164	..	17	M. R.	Soraparu and Rousseau street.	Recovered.
165	..	17	M. J. M.	Cor. Tchoup. and Marengo sts.	Died.
166	..	17	P. D.	Ship Hampton Court.	Died.
167	..	17	L. M.	Homeless.	Died.
168	.	17	S. J. B.	Cor. Ninth and Tchoup. streets.	Recovered.
169	..	18	R. D.	Cor. Ninth and Chippewa streets.	Recovered.
170	..	18	T. L.	No. 66 Girod street.	Died.
171	..	18	S. D.	Polymnia, b.Dorgenois& R'chbl've	Died.
172	..	18	G. C.	Steamboat Flirt.	Recovered.
173	..	18	W. G.	No. 94 Adele street.	Died.
174	..	18	J. F.	Mandeville, near Royal.	Died.
175	..	18	M. A.	Soraparu and Tchoupitoulas.	Recovered.
176	..	19	A. B.	Steamboat Carrie A. Thorne.	Recovered.
177	..	19	L. L.	Rousseau, bet. Fourth and Fifth.	Died.
178	..	19	J. L.	168 Baronne street.	Recovered.
179	..	19	P. C.	No. 25 St. Louis street.	Died.
180	..	19	U. M.	Corner Adams and Craps	Died.
181	..	19	P. D.	Ship Armstrong.	Recovered.
182	..	20	J. C.	Ship Hampton Court.	Died.
183	..	20	Rev. F. S.	Cons., b. St. And. and Josephine.	Died.
184	..	20	A. S.	Corner Poydras and Bolivia sts.	Died.
185	..	20	E. M.	Olivia, between Peters and Alix.	Recovered.
186	..	20	W. D.	No. 36½ Washington st.	Recovered.
187	..	20	H. L.	Soraparu, near Tchoupitoulas.	Died.
188	..	20	A. M.	Corner Poeyfarre and Foucher.	Died.
189	..	21	J. F.	No. 184 Robin street.	Recovered.
190	..	21	Mr. G.	Algiers.	Died.
191	..	21	S. F.	Bark Prairie Bird.	Died.
192	..	21	H. M.	No. 357 Victory street.	Died.
193	..	22	Mrs. G.	Algiers.	Recovered.
194	..	22	R. J.	Ship Hampton Court.	Died.
195	..	22	C. W. B.	" " "	Recovered.
196	..	22	J. M. F.	" " "	Recovered.
197	..	22	J. Q.	Bark Prairie Bird.	Recovered.
198	..	22	J. C.	Alix., between Olivia and Valette.	Died.
199	..	22	J. B.	No. 18 Jackson street.	Died.
200	..	22	F. A. K.	No. 472 St. Charles street.	Died.
201	..	22	J. G.	Rousseau street.	Died.
202	..	22	Bro. C.	Const., b. St. And. and Josephine.	Recovered.
203	..	22	M. A. K.	No. 243 Rousseau street.	Recovered.
204	..	22	A. C.	No. 935 Magazine street.	Died.
205	..	23	F. M.	Olivia, between Peters and Alix.	Died.
206	..	23	Not stated.	St. Chas., b. Vallence & Bordeaux	Recovered.
207	..	23	W. R. S.	Barrack and Levee streets.	Died.
208	..	24	G. H.	No. 7 Tchoupitoulas street.	Died.
209	..	24	A. K.	Corner Laurel and Austerlitz.	Died.
210	..	24	J. D.	Ship Preston.	Recovered.
211	..	24	H. H.	No. 62 Adele street.	Recovered.

List of Cases of Yellow Fever—Continued.

No. of Case.	Date when taken sick.	NAMES.	LOCATION WHERE TAKEN SICK.	RESULT.
		SEPTEMBER.		
212	Sept'r. 25	J. G.	Vallette, bet. Ali xand Eliza.	Recovered.
213	" 25	J. C.	Fulton st., bet. First and Second.	Recovered.
214	" 25	Bro. C.	Constance, bt. St. And. & Jos'ne.	Recovered.
215	" 25	W. W.	Ship L. L. Sturgis.	Died.
216	" 25	E. E.	Steamboat Flirt.	Died.
217	" 26	J. A.	Magazine and Market.	Died.
218	" 27	Mrs. G.	Carondelet and Philip.	Recovered.
219	" 27	P. J. S.	No. 221 Customhouse st.	Died.
220	" 27	W. J. Crane.	Conti, bt. Johnson and Galvez.	Died.
221	" 28	C. M.	No. 384½ Constance st.	Recovered.
222	" 28	H. S.	Old Levee, b. Bar'ks & Esplanade	Recovered.
223	" 28	E. R.	No. 16 Fourth st.	Recovered.
224	" 29	L. B.	Ship Screamer.	Recovered.
225	" 29	J. B.	Julia, near Basin.	Recovered.
226	" 29	Mrs. O.	67 St. Andrew st.	Recovered.
227	" 30	S. M.	Steamboat Pike.	Recovered.
228	" 30	C.	Dorgenois, bt. Palmyra & Gasquet	Recovered.
229	" 30	A. C.	No. 85 Philip st.	Died.
230	" 30	Mrs. A. B.	Chippewa and St. Andrew sts.	Died.
231	" 30	Felix Ault.	Not stated.	Died.
		OCTOBER.		
232	Oct'r. 1	J. H.	Lake End.	Recovered.
233	" 1	C. S.	Cor. Levee and Jefferson sts.	Recovered.
234	" 1	J. G.	No. 509 Fulton st.	Died.
235	" 1	G. B.	Cor. Philip and Old Levee.	Died.
236	" 1	Mrs. B. D.	Customh'se, b. Dauphine & Bur'y.	Died.
237	" 1	W. C.	633 Tchoupitoulas st.	Died.
238	" 1	P. L.	Soraparu, near Tchoupitoulas.	Recovered.
239	" 1	E. W.	Cor. Alix and Elmira sts.	Died.
240	" 1	P. P.	No. 499 Moreau st.	Died.
241	" 1	A. B.	Boys' House of Refuge.	Died.
242	" 1	C. H.	Hotel Dieu.	Recovered.
243	" 1	J. B.	Steamboat Mary E. Poe.	Recovered.
244	" 1	W. C. D.	Revenue Cutter J. A. Dix.	Recovered.
245	" 2	J. W.	No. 90 St. Peter st.	Died.
246	" 2	A. B.	No. 16 Elysian Fields st.	Died.
247	" 2	F. H.	No. 60 Girod st.	Recovered.
248	" 2	M. U.	No. 43 Dauphine st.	Died.
249	" 2	J. J.	Girod and New Levee sts.	Died.
250	" 2	J. O. M.	No. 66 Girod st.	Recovered.
251	" 2	J. D.	Ship City of Norfolk.	Recovered.
252	" 2	P. R.	Schooner Mary Antoine.	Died.
253	" 2	R. McE.	No. 370 Felicity st.	Died.
254	" 2	T. R.	No. 950 Tchoupitoulas st.	Died.
255	" 3	J. E.	No. 68 St. Andrew st.	Died.
256	" 3	H. W. A.	Homeless.	Recovered.
257	" 4	L. H.	Cor. Lafayette Av. and Claiborne.	Recovered.
258	" 4	W. R.	First Precinct Station.	Died.
259	" 4	A. C.	Chippewa, near Jackson.	Recovered.
260	" 4	S. C. M.	No. 223 Gravier st.	Died.
261	" 4	C. R.	Olivia, bet. Delaronde and Peter.	Recovered.
262	" 4	D. B.	Patterson st.	Recovered.
263	" 4	C. K.	Levee, bet. Conti and St. Louis.	Recovered.
264	" 4	K. S. McK.	327½ Chippewa st.	Died.
265	" 4	J. H.	Charity Hospital.	Died.

List of Cases of Yellow Fever—Continued.

No of Case	Date when taken sick.		NAMES.	LOCALITY WHERE TAKEN SICK.	RESULT.
			OCTOBER.		
266	Oct'r	4	M. S.	404 Annunciation street.	Died.
267	..	5	A. C.	No. 83 Philip street.	Recovered.
268	..	5	C. F.	Cor. Magazine and Josephine.	Recovered.
269	..	5	T. S.	Cor. Elysian Fields and Levee.	Died.
270	..	5	W. L.	Ship Hampton Court.	Died.
271	..	5	G. H.	No. 153 Old Levee.	Died.
272	..	5	W. W.	No. 534 Dauphine street.	Died.
273	..	6	J. L.	No. 13 Prieur street.	Recovered.
274	..	6	A. W.	Cor. Elmira and Alix streets.	Recovered.
275	..	6	F. G.	Ship M. E. Riggs.	Died.
276	..	6	G. K.	9th,bt. Annunciation and Chipp'a.	Died.
277	..	6	P. H.	Algiers.	Died.
278	..	6	D. McM.	No fixed residence.	Died.
279	..	6	J. H.	Josephine,bt. Dryades and Laurel.	Recovered.
280	..	6	A. D.	Ship Crescent City.	Died.
281	..	7	G. D. P.	Ship M. E. Riggs.	Died.
282	..	7	G. L.	Steamboat Poe.	Recovered.
283	..	8	G. D.	Tchoupitoulas and Girod.	Died.
284	..	8	Mrs. E. M. B.	No. 46 Josephine street.	Recovered.
285	..	8	P. S.	Girard, bt. E. Fields and French'n.	Died.
286	..	9	A.	Cor. Laurel and Josephine sts.	Recovered.
287	..	9	E. R.	No. 53 Delta street.	Recovered.
288	..	9	J. B.	Const'e.,bt. St. And'w. and Jos'p'ne	Died.
289	..	9	W. O.	No. 67 St. Andrew street.	Recovered.
290	..	9	C. F.	No. 335 Old Lee.	Died.
291	..	9	P. R.	Religious, near Celeste.	Recovered.
292	..	9	L. B.	No. 176 Josephine street.	Recovered.
293	..	10	E.	No. 18 Josephine street.	Recovered.
294	..	10	W. B.	Soraparu and Rousseau.	Recovered.
295	..	10	W. M.	No fixed residence.	Died.
296	..	10	T. A.	342 Baronne street.	Died.
297	..	10	M. R.	Steamboat Pike.	Died.
298	..	10	Rev. J. C.	Cont'ce,bt. St. Josp'h and Josep'ne	Recovered.
299	..	10	F. H.	No. 461 Conti street.	Recovered.
300	..	11	C. K.	Steamship Strasburg.	Died.
301	..	12	H. K.	" "	Died.
302	..	12	C. W.	No. 96 St. Peter street.	Died.
303	..	12	J. P. B.	Steamship Enmore.	Died.
304	..	12	C. H.	Ship Crescent City.	Died.
305	..	12	Mrs. C. K.	No. 213 Camp street.	Recovered.
306	..	12	J. C. B.	Ship Forest Eagle.	Recovered.
307	..	12	Mr. F.	No. 184 Robin street.	Recovered.
308	..	13	A. S.	No. 82 Seventh street.	Recovered.
309	..	13	J. B. D.	No. 16 Jefferson street.	Recovered.
310	..	13	D. P.	Cor. Miro and Dumaine streets.	Recovered.
311	..	13	A. S.	Cor. Victory and Elysian Fields.	Died.
312	..	14	J. C. H.	St. Charles, near Poydras street.	Died.
313	..	14	J. C.	No fixed residence.	Recoverep.
314	..	14	A. J.	Ship Crescent City.	Recovered.
315	..	14	J. C. B.	No. 427 Carondelet street.	Recovered.
316	..	15	L. J.	No. 395 Baronne street.	Recovered.
317	..	16	S. P.	Ship Hampton Court.	Recovered.
318	..	17	G. S.	Annuncitation,bt. 7th and 8th sts.	Died.
319	..	17	G. L.	St. Charles and Napoleon Avenue.	Died.

List of Cases of Yellow Fever—Continued.

No. of Case.	Date when taken sick.	NAMES.	LOCALITY WHERE TAKEN SICK.	RESULTS.
		OCTOBER.		
320	October 17	A. C.	Ship Rowantree.	Died.
321	.. 17	C. C.	Livaudais, between Washington and Sixth streets.	Recovered.
222	.. 17	M. C.		Died.
323	.. 17	J. K.	No. 592 Annunciation street.	Died.
324	.. 17	H. L.	No. 217 Constance street.	Died.
325	.. 17	J. McJ.	Ship Labon.	Died.
326	.. 17	L. K.	Dauphine street car station.	Recovered.
327	.. 17	J. P.	Homeless.	Recovered.
328	.. 18	H S.	Annunciation, between 7th and 8th	Recovered.
329	.. 18	W. H.	No. 201 Julia street.	Died.
330	.. 19	C. R.	Corner Laurel and Sixth.	Recovered.
331	.. 19	J. H. C.	No. 32 Girod street.	Died.
332	.. 19	J. J.	Homeless.	Died.
333	.. 19	L. S.	Water, near Amelia.	Died.
334	.. 20	J. C.	Ship Armstrong.	Recovered.
335	.. 20	N. J. W.	Ship Rowantree.	Died.
336	.. 20	G. T. S.	No. 130 Canal street.	Recovered.
337	.. 20	W. F. U.	No. 37 Elysian Fields street.	Died.
338	.. 21	T. B.	No. 11 Toulouse street.	Recovered.
339	.. 21	F. R.	Dauphine street car station.	Recovered.
340	.. 22	F. M.	324 Tchoupitoulas street.	Died.
341	.. 22	Pat M.	Corner Tchoup. and St. Joseph sts.	Died.
342	.. 23	J. R.	Ship Armstrong.	Recovered.
343	.. 23	L. M.	" "	Recovered.
344	.. 23	H. O.	" Rowantree.	Recovered.
345	.. 23	J. R.	Lugger Lavonica.	Recovered.
346	.. 24	M. C.	Homeless.	Died.
347	.. 25	J. H.	Ship Shatemuc.	Died.
348	.. 25	C. F.	Steamship Oberin.	Died.
349	.. 25	H. F.	" "	Recovered.
350	.. 25	N. S.	Perdido, bet. Bolivar and Bert'd.	Recovered.
351	.. 25	J. D.	No. 155 Old Levee.	Died.
352	.. 25	A. L.	Corner Richard and Constance.	Recovered.
353	.. 25	W. O. C.	No. 367 Conti street.	Died.
354	.. 26	W. S.	No. 640 Tchoupitoulas street.	Died.
355	.. 26	G. L.	No. 779 Tchoupitoulas street.	Recovered.
356	.. 26	M. E.	No. 51 Delta street.	Died.
357	.. 27	W. T.	Homeless.	Died.
358	.. 28	J. C.	No. 153 Old Levee.	Recovered.
359	.. 28	W. S.	No. 15 Jefferson street.	Died.
360	.. 29	T. B.	No. 155 Old Levee.	Recovered.
361	.. 29	M. A.	No. 373 Canal street.	Recovered.
362	.. 29	H. L. S.	Corner Calliope and Tchoupitoulas	Died.
363	.. 29	A. K.	No. 153 Old Levee.	Recovered.
364	.. 30	E. S.	No. 25 Toulouse street.	Recovered.
365	.. 30	C. P. E.	Ship Endymion.	Died.
366	.. 31	T. M.	No. 8 St. Ferdinand street.	Recovered.
		NOVEMBER.		
367	Nov'r 1	N. S.	Magazine, b. Bordeaux and Lyon.	Recovered.
368	.. 1	J. E.	Ship Colonial Empire.	Died.
369	.. 1	J. T.	" " "	Recovered.
370	.. 1	O. A. A.	Sixth District.	Recovered.
371	.. 1	M. C.	Homeless.	Died.
372	.. 2	D. H.	Corner Tchoupitoulas and Girod.	Died.

List of Cases of Yellow Fever—Continued.

No. of Case	Date when taken sick.		NAMES.	LOCALITY WHEKE TAKEN SICK.	RESULTS.
			NOVEMBER.		
373	Nov'r	3	D. M.	No. 66 Girod street.	Recovered.
374	..	4	D. C.	Corner Josephine and Water.	Died.
375	..	5	J. E. L.	No. 325 Jackson street.	Died.
376	..	6	P. A. L.	No. 347 Common street.	Died.
377	..	6	C. M.	No. 25 Toulouse street.	Recovered.
378	..	7	J. C.	Homeless.	Died.
379	..	10	C. R.	No. 19 Galatin street.	Recovered.
380	..	13	M. O'N.	No. 153 Rousseau street.	Died.
381	..	14	J. M. B.	Corner Toledano and Constance.	Died.
382	..	14	T. S.	Sixth street.	Recovered.
383	..	14	A. L.	No. 15 Jefferson street.	Died.
384	..	14	J. P.	No. 15 Jefferson street.	Recovered.
385	..	15	S. K.	Levee and Barracks.	Died.
386	..	18	M. D.	No. 16 Jefferson street.	Died.
387	..	18	C. W.	St. Andrew and Tchoupitoulas.	Died.
388	..	19	J. G.	Homeless.	Died.

S. C. RUSSELL, M. D.,

Secretary Board of Health.

DISINFECTION IN YELLOW FEVER.

Disinfection in cases of yellow fever, as practised this year, deserves careful consideration, because of its extent, the comparative novelty of such efforts in yellow fever, and its seeming success.

As has been previously stated in the history of yellow fever, given by Dr. Russell, the first cases of the disease appeared on the Valparaiso, and the river steamers lying in close proximity. Local disinfection was practised upon them, and upon the premises to which those taken sick chanced to be removed.

It was not until the disease showed itself definitely localized in that portion of the Fourth District near the Valparaiso, that disinfection was thoroughly and systematically practised.

The usual plan adopted was, by means of cart, tank, and sprinkler, to distribute so-called crude Carbolic Acid in the roadway of the streets in the vicinity of the case of fever, but at a distance, considered to be beyond the point actually infected by the fever contagion. Similar distributions were then made in the roadway crossing the space thus marked out, and the premises in the vicinity of the case, yards, walks, etc., were disinfected with colorless carbolic acid dissolved in water, by means of hand sprinkling pots.

When the case terminated by death, removal, or recovery, the premises were disinfected.

When time and appliances were sufficient, the floors were sprinkled with diluted white carbolic acid,—clothing and bedding either sprinkled in the same way, or put into boiling water. Walls, ceiling and furniture were disinfected by a steam atomizer, throwing a spray of dilute white carbolic acid.

Chlorine gas and sulphurious acid were used as disinfectants of rooms in a few cases.

Foul smelling drains, and all privy vaults of infected and neighbouring premises, were treated with zinc iron disinfectant, which consists of a saturated solution of zinc and ferric chlorides, to which six per cent. of pure carbolic acid has been added.

The supply of pure carbolic acid becoming speedily exhausted, the disinfection of yards and streets in the front of

premises where cases existed, necessitated the use of crude acid, causing annoyance to many inhabitants, and somewhat serious inconvenience to a few.

The unpleasant effects experienced in the use of "crude" carbolic acid, are not due to the carbolic and cresylic acids of the fluid, but to the napthaline therein contained, which, although quite ill smelling, is supposed to have but trifling value as a disinfectant.

It is, therefore, highly desirable that for disinfection so general, powerful and repeated as at present seems required, a grade of acid should be used from which napthaline has been removed.

The amount of acid, used in each district, on streets and premises, by cart and hand sprinklers, will be found in the reports of the Sanitary Inspectors of the different districts.

As has been already stated, the yellow fever appeared in each of the six districts of the city.

In the First District, forty genuine or putative cases of yellow fever were reported. Two of these were carried to the hospital, and recorded as homeless. Nine others are known to have been brought into the district, from infected localities outside of it. Five cases may perhaps be considered doubtful. The forty cases occurred on thirty-one different squares.

In five squares cases occurred after disinfection.

Square 58—Two cases before disinfection. One thirty-two days thereafter. Total population of square 100; liable to yellow fever, 29. The expression "liable to yellow fever," includes only persons who have come into this city, and children born since the epidemic year of 1867, and excludes all colored persons—as not liable to fever except in presence of an epidemic.

Square 151—Three cases occurred in same house, 184 Robin st., Sept. 10th and 21st, and Oct. 12th.

Chlorine disinfection, and bedding burned. Nineteen neighboring houses disinfected with carbolic acid. Total population of square 115; liable to yellow fever 32.

A failure as to house—an apparent success as to the square.

The first of these cases probably contracted his disease in the infected portion of the Fourth District.

Square 6—Sept. 16th, a case; house and vicinity (ten premises) disinfected Sept. 19th. Another case occurred in same house Oct. 20th. Disinfection repeated—no further cases. Total population, 80; liable to yellow fever, 19.

Square 147—Oct. 11th, a case. Twenty-five premises disinfected Oct. 14th. Another case occurred next door, Oct. 28th. Total population 170; liable to yellow fever, 24.

Square 151—A case occurred Oct. 16th; disinfected Oct. 22d. A brother attacked Oct. 26th. No further cases. Total population, 96; liable to yellow fever, 18.

This latter case cannot be considered a failure. Evidently the disease may have been contracted previous to disinfection.

In all, save four squares out of thirty-one, apparent success attended the measures of disinfection practised.

SECOND DISTRICT.

Total cases of fever, 37. Number brought into the district, 11. Number originating in the district, 26. Total 37 cases on 19 blocks.

In two blocks cases occurred subsequent to disinfectiou.

Square 17—Total cases, 5—first case Sept. 24th, three cases Sept. 29th, and one Nov. 14th.

The first four cases originated in a sailor's boarding establishment, known as the Baltimore House, previous to disinfection. By reference to the report of Dr. Clark, sanitary inspector of the Second District, it will be seen that the failure, the case of Nov. 14th, may have been only apparent.

Total populaton 183, liable to yellow fever 52.

Square 72—One case subsequent to disinfection. First case Oct. 1st, second case Oct. 12, in the same house. Neighboring premises disinfected, but not that wherein the cases occurred, on account of the presence of the sick person. The second case was nephew and nurse to the first—slept in his room, and was taken sick on the day when disinfection was put into effect.

THIRD DISTRICT.

In the Third District, 36 cases of yellow fever are reported, of which six were contracted out of the district, one case owing its origin to Memphis. Sixteen cases were removed to

Hospital, thirteen of these being seamen. Disinfection was practised with great thoroughness in this district.

The 36 cases occurred in sixteen different blocks and at four "Posts" on the river front. Cases of yellow fever subsequent to disinfection occurred in but two blocks of the sixteen.

Square 12—One case on Sept. 6th, disinfection on 9th and 10th; second case, Sept. 17th, disinfection repeated; no other cases. Total population of square 108, liable to yellow fever, 15.

Square 3—A case on Sept. 28th, disinfected Oct. 2d. Another case Oct. 26th, disinfected Oct. 28th and 29th. Total population 195, liable to yellow fever 65.

The cases at the lodging-rooms of the car station on Poland street have special interest. The 1st case occurred Oct. 23d, the 2d case Oct. 27th, within four days of each other. One hundred men slept in this single "hall." Disinfection was made Oct. 24th and 30th; no subsequent cases appeared.

The vessels on which 16 persons were attacked by yellow fever were thoroughly disinfected by carbolic acid, but without favorable result, new cases appearing upon them.

At the request of Dr. Newman, Sanitary Inspector of the Third District, the Hon. James Lewis, Administrator of Improvements, promptly and cheerfully furnished a gang of laborers and suitable tools, and the batture, under the wharves, from Esplanade to Independence streets, was promptly and thoroughly cleaned, offal and ordure being thrown into the river. On Nov. 2d this surface was sprinkled with crude carbolic acid, by hand, by the sanitary police.

After this cleansing and disinfection, no other persons were attacked with yellow fever, although 39 persons, liable to fever, remained on the ships supposed to be infected, and other vessels arrived in port and were laid to these wharves, where 5 cases of the fever had occurred in the previous 10 days.

FOURTH DISTRICT.

As a large number of cases occurred in this portion of the city, the analysis of Dr. Perry, its Sanitary Inspector, is submitted:

107 cases occurred in 59 squares, and 7 upon ships.
20 entire squares disinfected.
15 " " " with no subsequent cases of fever.
5 " " " with subsequent cases.
25 half squares disinfected.
20 " " " had no subsequent cases.
5 " " " had 10 subsequent cases.
7 squares, in each three houses were disinfected, no subsequent cases; four of these squares, however, being out of the yellow fever district.
59 squares.—Total population, 6,846.
Liable to yellow fever, 1,744.
Total cases of yellow fever, 107.

Square 29—In this square, in which single houses were disinfected, there were four subsequent cases, in houses not previously disinfected.

Square 47—Six cases before disinfection, none after it.

Ninety-six persons took yellow fever before disinfection, and twelve afterwards in the district.

FIFTH DISTRICT.

Total cases, 34, on thirteen blocks and upon eighteen premises.

In eight squares there were no cases subsequent to disinfection.

Square 80—Two cases on August 30th, six neighboring premises disinfected. Other cases—two on the 16th, and one on the 17th Sept., occurred upon the premises not previously disinfected. The whole square was disinfected Sept. 17th; no subsequent cases. Total population 96; liable to yellow fever 23.

Square 77—Total cases, three—one Sept. 3d, two Sept 18th. Four premises disinfected Sept. 4th; no other cases on these premises. Cases of 18th occurred on premises not previously subjected to disinfection. Twenty premises disinfected. No other cases in this block. Total population 51; liable to yellow fever 21.

Square 41—Two cases 30th August; one on the 10th, and another on the 12th of September. Five neighboring premises to those where the cases of the 30th occurred, were disinfected;

no one in them was attacked with fever. Whole square disinfected Sept. 12th, no subsequent cases. Total population 116; liable to yellow fever 40.

Square 17.—Total cases 6; total population 82; liable to yellow fever 19.

The cases upon the 8th, 10th and 12th of September, occurred in the same house. On account of the presence of the sick, the house was not disinfected until the 15th. Five neighboring premises, however, were disinfected September 8th.

The cases of the 14th occurred on the third premises from the margin of the disinfected area. Neighboring premises of cases of the 14th September were disinfected.

The case of the 24th also happened on premises not yet disinfected. September 24th, the whole square was disinfected; no other cases.

Square 79—Total cases 6. One upon September 10th; 5 premises were disinfected Sept. 10th. On Sept. 16th, 4 cases occurred on premises not previously disinfected. Whole square disinfected September 16th. On October 5th, another case occurred—seeming to originate in the disinfected locality. Five premises were re-disinfected; no subsequent cases. Total population 66; liable to yellow fever 22.

At the breaking out of the disease in this district, the roadway of the streets, bounding a portion of the district, about four squares by seven, was liberally sprinkled with crude carbolic acid, by cart sprinklers.

Cases of the disease occurred on eleven of the twenty-six squares included, but none originated outside of this locality. The total population of this infected district was 1352; liable to yellow fever 226; total cases of fever in this locality, 26.

Although these particulars are fully given in the report from the office of the Sanitary Inspector of the Fifth District, yet, it seemed desirable to present them here, as the river separates this district from the remainder of the city, and as far as known, this was a local epidemic of narrow limits, and not traceable to any foreign importation, although the first case of the disease in Algiers was contracted on the opposite side of the river.

SIXTH DISTRICT.

Twenty-seven cases occurred on twelve squares; seven blocks having but one case each. Forty premises were disinfected in these blocks, and no subsequent cases. Five blocks had multiple cases.

Square 111—Two cases September 10th and 11th; 10 premises were disinfected; no subsequent cases. Total population 91; liable to yellow fever 16.

Square 112—Cases on September 6th, 15th and 21st; case of the 6th only 1 premises was disinfected. Case of the 15th 10 premises were disinfected; 21st, 28 premises. The case on the 15th and 21st occurred on premises not hitherto disinfected. Total population 60; liable to yellow fever 7.

Square 113—Cases August 27th; September 9th, 4 cases; 10th, one case. August 27th, 1 premises disinfected; September 10th, 42 were disinfected. Total population 73; liable to yellow fever 14.

Square 150—Case on Sept. 9th; 3 premises were disinfected; case of the 13th, 3 premises were disinfected. Case of the 15th, 30 premises were disinfected. These subsequent cases occurred on areas not previously disinfected. Total population 75; liable to yellow fever 22.

Square 248—A case August 25th; 1 house was disinfected. A case on September 3d; 1 house was disinfected. A case on the 10th; part of square disinfected; after case of 27th, whole square was disinfected. No subsequent cases. These cases were in the same row of houses. This may be reckoned a failure, although the difficulty of securing absolute disinfection in inhabited houses, is to be considered.

The total population of all squares of the city in which cases of yellow fever appeared was 17,614; liable to yellow fever, 4237. Total number of cases 388.

Some cases of yellow fever escaped the attention of the Board of Health; some mistakes of diagnosis were made; some cases not being yellow fever, though so reported; but the statements are in the general correct and conclusions may safely and legitimately be deduced from them.

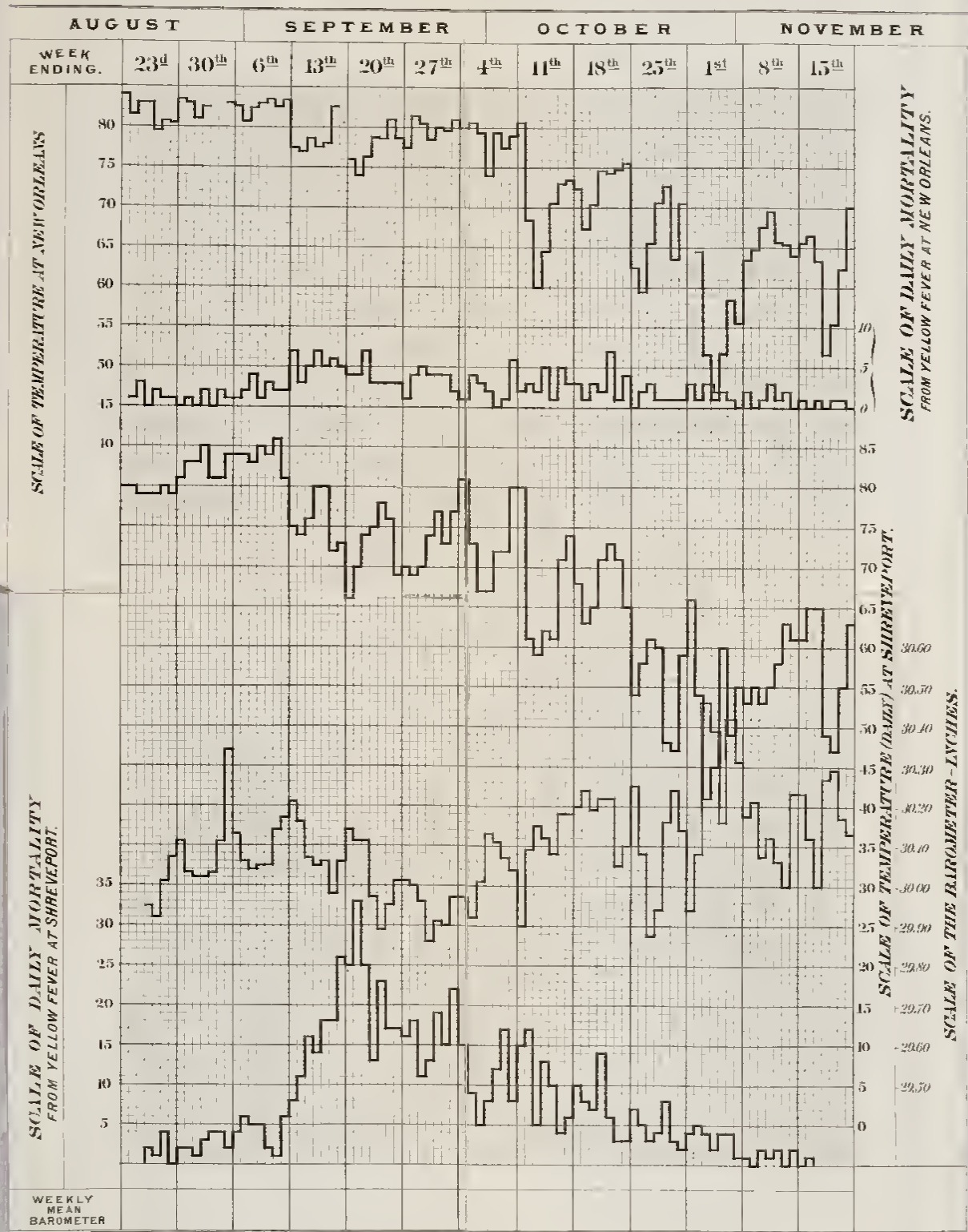
The attention of those who wish to study the subject of disinfection, and judge for themselves of its value, is invited to

DIAGRAM

Of the Fluctuations in MORTALITY from YELLOW FEVER at Shreveport, La.

from Aug. 20., to Nov. 20. 1873.

With Meteorological Observations for the same period



The irregular line at top of chart represents daily mean Temperature at New Orleans.
The second line from top of chart represents Mortality by Yellow Fever at New Orleans
The third line from top of chart represents daily mean Temperature at Shreveport
The fourth line from top of chart represents mean Barometer pressure at Shreveport (daily)
The bottom line represents Mortality by Yellow Fever at Shreveport (daily)

the minutiæ given in carefully prepared tables, to be found in the reports of the sanitary inspectors.

It will have been noticed, that the disinfection was largely made during the early part of September, at which date the disease was at its height in Shreveport, and was rapidly reaching its maximum in Memphis, and subsequent to which yellow fever made its appearance in many towns of Louisiana and Texas.

It is evident therefore that the general epidemic tendency of the year, at that date, had not gone by. Examination of the mortuary and meteorological chart farther on, will show no changes of the class of phenomena therein noted, sufficient to account for it.

Continuously high temperature is by all authorities admitted to be an important element in the origination and prevalence of yellow fever. That the exemption of New Orleans, in contrast to Shreveport experience, is not due to a lower thermal range in the former place, is shown in the accompanying diagram of thermal, barometric and mortuary ranges.

For this valuable and interesting diagram, the Board is indebted to the thoughtfulness and courtesy of F. P. Leavenworth, Esq., U. S. Civil Assistant Engineer.

The New Orleans mortuary and thermal lines have been added at this office by Mr. Stathem, Meteorological Observer of the Board.

As thorough disinfection has been, as far as is known, the only factor prominent in the year's experience of New Orleans in contrast to that of various towns and communities where yellow fever prevailed epidemically, it seems probable that the effect of disinfection was to delay, and in some degree to limit the spread of the disease.

As the plan of disinfection is wholly empirical, certain conclusions can alone be reached, by carefully repeated experiments.

The result of experiment and comparative experience may be summed up as follows:

In 1870 New Orleans suffered with yellow fever. Its ravages were confined to three blocks in the Third District, and as an epidemic, it was confined to a portion of the Second Dis-

trict, four blocks by twelve. The same year, in Mobile yellow fever appeared later than in New Orleans, but ravaged every part of that city. In New Orleans *great efforts were made* to arrest the disease by sanitary operations.

No efforts whatever were made in Mobile.

In 1871 yellow fever appeared here. Various efforts were made by the Board, to limit its spread, and with apparent success, while every other southern town, city, or village where yellow fever appeared at all that year, suffered with it, in its epidemic form, and in none of these were intellgent, persistent efforts made to control it.

In 1872 yellow fever was again present in the Fourth District. Again disinfection was used and with apparent success.

The epidemic of 1873 has just been given, also an apparent success.

Some experience has been acquired; and when the disease appears again, the experiment can be continued in such systematic and rigid manner, that a few seasons more will furnish conclusions of value.

The labor of disinfection done by the members of the police on duty with the Board of Health was very great, but was cheerfully and thoroughly performed. Of the twelve officers engaged in this duty, all escaped the disease, though but one was acclimated by a previous attack of yellow fever.

As illustrating the cordial and intelligent recognition and aid which many municipal bodies render in sanitary matters, it is worthy of mention, that to this date, the City Council of New Orleans has refused to pay the expenses of this disinfection though by law required so to do.

Soon after the appearance of yellow fever, a deputation of merchants waited upon those controlling the daily journals, and requested that publication be refused to the weekly mortuary lists, furnished by the Board of Health.

Contrary to the opinions and advice of the Board, the request was acceded to by all save the editor of the *German Gazette.*

The legitimate, predicted result followed. Exaggerated reports spread through the city, and were written and telegraphed throughout the country, and no official statements

were at hand to correct them and control public imagination. It is believed that both authors and abettors of this scheme became convinced of the mistake which had been made.

It being evident that by the community in general, the Board was held responsible, and severely blamed for this suppression of the truth, the following preamble and resolutions were adopted. They were, however, not allowed to appear in either of the three English journals in their printed report of the meeting of the Board at which they were adopted:

Whereas, an impression prevails in the community, prejudicial to the reputation of the Board, growing out of the non-publication of the weekly mortuary reports during the past summer,—

Therefore be it

Resolved, That this Board is in no wise responsible for the non-publication of said reports, the said reports having been regularly furnished to the daily journals for publication in the usual form and at the usual time, throughout the summer.

Resolved, That it has been and is the opinion of this Board, that said reports should have been published, it being due to the public that they should at all times be advised of the true sanitary condition of the city.

Ordered, That these resolutions be incorporated in the Annual Report of this Board to the Legislature.

SANITARY OPERATIONS.

In the foregoing pages, much of the sanitary labor done, has been reported and commented upon.

The customary annual political disturbances at the beginning of the year, again withdrew the police force for some weeks, from their important hygienic work.

The annual house-to-house inspection, and its resulting general cleansing of premises and vaults, did not commence until the last of March, and did not terminate until near the middle of the year, a much later date than is deemed desirable.

It is necessary to remark that the number of premises does not include all of the city, nor consequently all of its inhabitants. Certain parts of the city, near its limits, were excluded

from the inspection by the greater necessity of prompt examination of the more densely inhabited parts of the town. The great amount of labor involved in the disinfection of cholera and small-pox cases, rendered it impossible to make an inspection co-equal with the limits of the city.

The return of children born in 1872 is, also, incomplete; the inquiry having been neglected in certain portions of the city. The next year's investigation will, doubtless, give a pretty correct idea of the birth rate of New Orleans.

As far as the examination has gone, the rate is one child to every thirty white inhabitants, and one child to every twenty-five colored inhabitants. If that proportion holds throughout the city, the total number of infants born in 1872, should be about eight thousand.

The summary of results follows:

HOUSE-TO-HOUSE INSPECTION.

Number of premises inspected		38,476
" " with hydrants		10,793
" " " cisterns		21,683
" " " " and hydrants		5,489
" " " no water supply		511
" " build of wood		30,922
" " " iron		13
" " " brick		7,541
" " with animals—		
horses	1,446	
mules	1,718	
cows	652	
hogs	337—	5,069
" Lots vacant		2,817
" persons occupying premises		178,646
" Children born in 1872—white, 3,032; colored, 1,234		4,266

MISCELLANEOUS.

Number of inspections made	51,945
" re-inspections	12,720
" nuisances requiring abatement	8,508

Number of notices to empty vaults	7,896
" " rebuilt vaults	316
" " repair vaults	438
" " disinfect vaults	1,859
" " clean premises	345
" " fill lots	87
" " drain lots	73
" " remove hogs	169
" " supply water	71
" " repair houses	31
" " raise and drain alleys	41
" dangerous buildings reported	4
" premises disinfected	2,490
" " fumigated	985
" cases of small-pox	1,299
" " cholera	359
" " yellow fever	388
" persons reported for non-compliance	87

All this work was done by the members of the Metropoliton police force, detailed to duty with the Board of Health, under the direction of the Sanitary Inspectors. The Board of Health make honorable mention of the sanitary police, for their uprightness, industry and intelligence, displayed throughout the year.

Last year it was the pleasant duty of the Board of Health to make acknowledgment of the prompt, cordial and effective co-operation of the Hon. Metropolitan Police Commissioners, in those matters relative to the public health, in which they were concerned. This *entente cordiale* has been maintained throughout 1873, and the continued courtesy and co-operation of the Hon. Metropolitan Police Commissioners, is highly appreciated, and with pleasure acknowledged by the Board of Health.

During the past year the nuisances from vidangeur carts has been brought to a minimum. The ordinances of the Board, and a few suits of the wealthier class of owners for their violation, were sufficient to secure complete deodororization of the greater proportion of night carts and contents. The poorer class of persons, not owners, but merely borrowing or renting a

dray and putting a common dry goods box on it for conveyance of night soil, could not be reached by fines, collected by suits in civil courts.

On the 22d of July, at the recommendation and request of the Board of Health, the Hon. City Administrators passed an ordinance, authorizing and directing the police force to make arrests of any driver or person in charge of any ill smelling, foul carts, thus rendering effective a former ordinance, by which persons found in violation of the ordinance were subject to a fine of $50, and in default of payment, imprisonment.

The police acted promptly; a few arrests were made, and the offenders as promptly punished. New Orleans is now practically free from nuisance, caused by the emptying of vaults. If any violation occur, it is in the power of every citizen to call upon the nearest policeman to arrest the offender, thus securing his immediate punishment, and that without special loss of time or personal inconvenience.

During the year, an ordinance was adopted by the Board, requiring all persons building houses to procure at the office of the Board, a permit to build, based upon the showing by the Sanitary Inspector that the lots were filled in such manner as to prevent standing water under the houses, and in general perfect drainage of the premises. Notice of the passage of the ordinance was served upon all builders who could be found. No attention being paid to the ordinance, suit was brought against two prominent builders, which resulted in judgment being rendered in favor of the Board. There is now no difficulty in securing attention to the law.

The plan of securing the proper filling of lots before the erection of buildings is considered by the Board an important sanitary advance.

The method of street cleaning practised during the year shows no special improvement; comparatively clean streets are made unclean and unhealthy, by scraping together the semi-liquid contents of the gutter and throwing it upon the streets.

Were the filth allowed to remain in the gutters, and abundance of water supplied to them, the injurious properties of the filth would be got rid of without injury to public health.

In the latter part of July, application was made to Hon. Mr. Fitzenreiter, Administrator of Water Works, to have water turned on to the street gutters in worst condition. The request was immediately and cheerfully granted.

At first the streets needing water were reported by this office to the Water Works office, and then the proper plugs opened; but after a short time, Mr. Fitzenreiter issued instructions to certain employees of the department to turn on the water wherever a foul gutter could be reached in this way. (The plugs were opened from five to ten minutes each.)

Through Mr. Fitzenreiter's courtesy also, the sanitary police were furnished with "spanners," and authority given them to turn on water whenever and wherever necessary. This use of water evidently had a very beneficial effect.

The Board desires to place on record their appreciation of the cordial co-operation of Mr. Fitzenreiter in its efforts to improve the hygienic condition of the city.

The direct influence which may be exercised by the proper authorities, in preserving the lives and health of citizens is admirably shown by the sanitary experience of the Third District during the past summer. A protection levee was constructed some years since, closely in the rear of the inhabited portion of this district, which contains one-fifth of the total population of New Orleans.

The levee was unprovided with outlets. The consequence was that sewage and rain-fall gathered in the shallow basin formed by it. During periods of dry weather, or with light rain-falls a large vegetable growth took place, to be flooded and killed by the next heavy rain-fall, and thereafter to decay and again to be followed by similar successive processes.

With these explanatory remarks, the following communication made to the city government in the beginning of August, is submitted:

OFFICE OF BOARD OF HEALTH,
State of Louisiana, Aug. 5th, 1873.

Hon. A. L. Wiltz, Mayor of New Orleans:

SIR—As instructed by the Board of Health, I forward a copy of the report of Dr. Newman, sanitary inspector of the Third District.

The "unusual mortality" alluded to in the opening of the report, was that of the 23 deaths by congestive intermittent fever occurring in the whole city during the week ending 13st July. Thirteen occurred in the Third District alone, and of these ten died in the immediate vicinity of Port and Ferdinand sts. Reference to the map will show, that the northerly and northwesterly winds prevailing immediately preceding this unusual mortality, would carry the malarial poison of the undrained section referred to, across this very portion of the Third District.

The Board of Health recommend the adoption of the proposition, to construct flood-gates in the protection levee mentioned, to immediately relieve the citizens of the Third District from this unnecessary source of sickness and death.

I have the honor to be,

Very respectfully, your ob't servant,

C. B. WHITE, *President.*

No immediate attention was paid to this letter, and some days thereafter another communication was sent to the city authorities again pressing the matter upon their notice.

Action was at last taken in accordance with the suggestion of the sanitary inspector, and resulted in an immediate and most marked diminution of all malarial diseases in the suffering locality, and the complete disappearance of congestive intermittent.

An interesting and instructive commentary on the advantages of the scientific sanitary direction of drainage.

SUBSOIL WATER.

Throughout the year, daily observations have been made of the oscillations of the water of the soil in all the six districts of the city.

The general result corresponds with that of the last two years, that the variations in height of the ground are dependent upon rain-fall, and not on the height or depression of the surface of the water of the river.

The only well apparently influenced by the river is one of the wells in Algiers, distant two hundred feet from the river.

But even this is quite doubtful. A series of yearly observations will be required to determine facts.

Profiles of these well and river oscillations have been drawn by the Sanitary Inspector of each District, and are preserved among the records of the Board.

METEOROLOGY.

The observations begun last year have been continued during 1873. The results will be found in the report of Mr. Stathem, Meteorological Observer of the Board. Entire reliance can be placed in the very numerous observations he has made and recorded.

Full tables are given of thermo, baro and hygro metric results; and the most striking and important features of the meteorology of the year are exhibited by the meteorographic lines of the large charts, showing annual mortality.

In the chart of the six months ending July 1st, the coincidence of the absence of rainfall with the appearance and prevalence of cholera, and the decline and disappearance of that disease with heavy and repeated rain-fall, are strikingly shown.

The barometer observations are made with an aneroid barometer. This, as being an hourly self-registering instrument is exceedingly valuable, but is not to be relied upon, unless corrected by a mercurial barometer. An aneroid is a delicate piece of machinery, in danger of getting out of order, and needing to be repaired as a watch might do. A mercurial barometer, of the best quality, should be added to the instrument now in use.

LABORATORY.

The report of the Chemist is to be found further on in the report. The presence of the great epidemic diseases of the year, and the necessities of disinfection and general sanitary work, have much interfered with the labors of the Chemist, who is also Sanitary Inspector of the Fourth District, the portion of the city most infected with yellow fever.

Notwithstanding, a good amount of valuable work has been done.

TELEGRAPH.

During the early part of the year, a complete telegraphic apparatus was purchased, and set up in the office of the Board. It consists of battery, key, relay an dregister. The Morse system of signals is used. This station was put in connectiou with a line already existing from the Charity Hospital and the State House to the City Hall. The necessary connections were made by S. Weeks, Esq., without expense to the Board; and for his services in this matter, and in aiding in the procuring of instruments, and getting the line and station into working order, the Board returns its thanks.

Through the central office, at the City Hall, the office of the Board has telegraphic connection with all Police Stations. The saving of time, expenses of messengers, and the promptness with which cases of sickness can be learned of and cared for, make the apparatus an invaluable addition to the office of the Board. Furthermore, the Board has had no telegraphic expenses, save the instruments, as Mr. Stathem, the clerk and meteorological observer, acts also as telegraph operator.

LIBRARY.

A few books have been added during the year.

Jurisprudence, Medical.....*Taylor*
Air, Travels in the.....*Glaisher*
Manual for Health Officers.....*Wilson*
Physiology, Practical.....*Lankester*
Physiology and Hygiene, Elementary Lessons in
Huxley and Youmans
Physiology.....*Cutter*
Physiology.....*Dalton*
Physiology.....*Steele*
Physiology.....*Jarvis*
Physiological Laboratory, Manual of, 1st vol.....*Sanderson*
" " " 2d.vol..... "
Spectroscope.....*J. Norman Lockyer*
Spectrum Analysis.....*Schellen*
Cholera Epidemic, in England, 1854,
Committee on Scientific Inquiries
Meteorographica.....*Galton*

Foods ..... *Smith*
Food, Adulteration of ..... *Hassall*
Sea, the Deep ..... *Wyville Thompson*
Botanic Terms, Manual of ..... *Cooke*
Botany, 1st Book ..... *Youmans*
" 2d " ..... "
Photography, Dictionary of ..... *Dick*
Geology, Stories of ..... *Taylor*
Geology, Terms, Manual of ..... *Page*
World, Childhood of ..... *Clodd*
Hygiene, of Air and Water ..... *Procter*
Zoology, Manual of ..... *Nicholson*
Longevity of Man ..... *Thoms*
Adresses, Popular ..... *Huxley*
Lectures, Popular, Scientific ..... *Helmholtz*
Ocean World ..... *Figuier*
Atmosphere, The ..... *Flammarion*
Animal Plagues ..... *Fleming*
Technology, Chemical ..... *Wagner*
Science, Primers. ..... *Roscoe*
Ozone and Anozone ..... *Fox*
Stars, Half Hour With ..... *Proctor*
Astronomy ..... *Norman Lockyer*
Statistics, Vital—State of Michigan, 4 vol ..... *Baker*
Histology, Pathological Text-Book of ..... *Rindfleisch*
Histology ..... *Stricker*
India, Report of the Sanitary Commissioners for 1871.
Bombay, " " " "
Madras, " " " "
Calcutta, Reports of Municipality, 1867 to 1871.

For the reports from India, the Board acknowledges its indebtedness to the courtesy of Mr. de Fonblanque, British Consul at the port of New Orleans, and to the Government which he represents.

The following journals have been taken during the year:

Nature .....
American Chemist ..... *Chandler*

Chemical News, English.....*Crookes*
Science Gossip.....
Monthly Microscopical Journal.....*Lawson*
The Practitioner, Journal of Therapeutics and Public Health.
Medical and Surgical Journal.....*Bemiss*
Botanical Journal.....
Journal of Science (Quarterly).....*Crookes*
The Lens (Microscopical Science).....
The Sanitarian.....*Bell*

The Board has received and preserved the reports of all the Boards of Health throughout the United States.

The elementary books on Physiology, Hygiene and Science were procured, that an examination might be made and a correct opinion formed of their suitability for introduction into the State and Public Schools.

FINANCES.

The Board invites the attention of the General Assembly to its pecuniary necessities.

The appropriation last year was but seven thousand dollars, instead of twelve thousand, as considered necessary by the Board, and owing to the pressure of its creditors, the warrants were immediately sold, and resulted in an addition to the funds of the Board of but thirty-one hundred dollars and eighty-six cents, whilst its indebtedness was over five thousand dollars, thus leaving about two thousand five hundred dollars to be paid out of quarantine receipts of 1873.

In estimating the revenues of the Board, and as partly explanatory of its yearly expense over receipts, it is to be considered that the receipts at Mississippi Quarantine Station have decreased from twenty-five thousand in 1869 to eighteen thousand in 1873, although receipts from the Atchafalaya Station having increased about one thousand dollars per annum, the actual decrease of receipts is about six thousand per annum as compared with 1866.

The General Assembly is respectfully reminded that previous to its Act, March 16th, 1870, increasing the powers of the Board and consequently its duties, this body was in effect only

a Quarantine Board, and its powers and duties, as a Board of Health practically nothing.

Previous to that date there were no meteorological or other observations made; no extended, or systematic, or continued reording of the facts of epidemics; no laboratory work or expenses; no vaccine furnished to physicians of the city or State; no library commenced or augmented; no purchase of scientific instruments, or use made of them; no house-to-house inspection, with its attendant expenses. Whatever reports were made to the Legislature, consisted of a few pages, containing some valuable facts, but no way comparable with the accurate, extended and complete reports which are now annually presented, and whose value is distinctly recognized by all experts in sanitary matters throughout the United States.

An examination of those items, which cause increased expenses of the Board at the present time as contrasted with the past, will show that they are, in the main, necessities of the increased and increasing work accomplished by the Board of Health.

The indebtedness of the Board, December 31st, 1873, is—

To Groceries for Mississippi Station	$ 768 99
To Freight	75 00
To Books and Periodicals	175 00
To Printing 1000 copies Annual Report	900 00
To Printing 2000 Lithographs	500 00
To Stationery office of the Board, etc	754 00
To Salaries:	
Attorney (one year)	500 00
Resident Physician Miss. Quar. Station	311 66
Secretary (five months)	833 33
President (seven months)	1166 66
To Vaccine	60 00
To Disinfectants	35 00
To Repairing Instruments	10 00
To Bill Republican, printing	30 00
Total	$6119 64

There should be purchased during the year a Mercurial Barometer of the best quality, say $125 00

Vaccine for the year	150 00
Expenses of Laboratory	75 00
Scientific Books	150 00
Scientific Journals	75 00

The Board therefore requests, that an appropriation equivalent in cash to seven thousand dollars be made for its relief.

The Treasurer's report gives a minute and accurate account of all receipts and expenditures.

As required by law, his books, papers, vouchers, etc., have been submitted to the examination of the State Auditor, and found correct.

CONCLUSION.

The various papers which make up the remainder of this Report are worthy of careful examination. The facts gathered and analyzed, the subjects treated, are of various interest, some especially to the student of meteorology, or chemistry, or vital statistics; but all bear, more or less directly, on the preservation of human health and life in general, and of the citizens of Louisiana in particular. They, therefore, are of the first importance, and deserve the careful consideration of those entrusted with the charge of the general well-being of the State.

In behalf of the Board of Health,

C. B. WHITE, M. D.,

President.

SEWERAGE AND DRAINAGE OF NEW ORLEANS.

G. W. R. Bayley, Esq., C. E.

New Orleans, December 31st, 1873.

To the President and Members of the Board of Health:

Gentlemen—I respectfully submit the following views and suggestions respecting the utilization of the Mississippi river water for street cleaning purposes, and the drainage of the city of New Orleans.

Clean streets, the abundant use of river water to wash and purify them, and the prompt removal of sewage, are admitted to be essential to the preservation of the public health of New Orleans, and especially so during the hot months.

Water is used now to some extent to cleanse the street gutters, but the supply from the hydrants is inadequate, and it has therefore not been used in sufficient quantities, nor often enough, nor systematically. During the summer and autumn months, at least, there should be constant streams of water passing through the street gutters on both sides of every street, leading from the river. In no other way can our streets be maintained in a cleanly condition, so effectually and so cheaply, when a judicious plan for obtaining, using and disposing of river water for this purpose has been carried into effect, and a proper system of drainage is completed.

By means of a systematic and persistent use of river water to clean our streets, good drainage, and a well organized plan of thorough and prompt disinfection, it is thought that much may be done to prevent, or at least to check and control the spread of yellow fever, and of other malarial diseases.

To accomplish fully the object proposed, a line of large-sized iron pipes should be laid down parallel with the river front, and as near the river as will permit of their being laid about five feet below the level of highest water in the river. Supply pipes, provided with valves, should connect the main pipes with the river, so that, during the periods of high water in the river, the mains may be supplied without pumping. From the mains, discharge pipes should lead to the street gutters. Suitable pumping machinery should be erected, at intervals, along the river front, to supply the main pipes during low water in the river. It might be well to divide the river front into sections, and make them independent of each other.

By means of valves in the main and discharge pipes, the flow of water could be, at any time, cut off from or concentrated in any one or more streets in any section. In cases of fire, an abundance of water could be supplied thus through any one or more streets, and during rain storms it could be stopped entirely.

One great objection to the present plan of drainage is, that it allows all of the water passing through the gutters of the streets in the front of the city, where it is most closely built up and densely populated, to pass back into the gutters and canals in the rear, carrying with it the accumulation of sewage, garbage and feculent matter, the refuse of the city in front. As all this passes through open gutters and canals, the effluvia arising from same must be detrimental to health, and this constitutes the greatest objection to a residence in the suburbs back of Claiborne street, and retards the growth of the city in that direction. The swamps and lowlands between Claiborne and Metairie Ridge have, in part, been drained—above Elysian Fields street—several feet below the level of Lake Pontchartrain, and have been made habitable; but so long as the accumulations of sewage from the front portions of the city are carried back into the canals in the suburbs, a residence there must be more or less undesirable. In consequence, the tendency has been, and is yet, to build near the river, and the city has grown up and down stream, along its banks, from the Fisherman's canal to Carrollton, and comparatively little lakewards.

Again, the drainage of the lands near the river, which are higher than the level of Lake Pontchartrain, into the suburban canals where the land is below said level, necessitates the pumping of all sewage and rain water from the lower level, and its discharge into canals leading to the Lake. This is done at great cost, and it subjects the lowland suburbs to the dangers of overflow, during heavy rain storms, because the whole mass of water from the front portion of the city must be disposed of, before the level of storm water in the suburban portion can be reduced.

The system of draining the high land front of the city into the lowland suburbs, and then elevating the water again, is objectionable in every point of view, and unnecessary. It is detrimental to the public health, expensive, very injurious to the value of real estate in the suburbs, and retards the growth of the city in that direction. It can be and should be remedied.

For all that portion of New Orleans, next the Mississippi river, which is above the ordinary level of Lake Pontchartrain,

natural drainage into canals leading to the lake, should be substituted for artificial drainage, and every canal so used and connecting with the lake should have its banks leveed to a height above the highest known storm water in the lake. The New Navigation Canal, and the Carondelet Canal and Bayou St. John, as well as the New Upper Line and People's Avenue Canals should be utilized for this purpose. The Upper Line and People's Avenue Canals should be extended to the higher lands next the river, for that purpose. The whole suburban area of the city, below the level of Lake Pontchartrain, should be divided, by surrounding levees, into basins, or polders, and each basin should have its own independent system of interior canals and draining machine or machines. Then each basin would be independent of every other one; would be isolated from all the rest; would only have its own sewage and rainfall to dispose of, and no general overflow ever could occur. There would then be no necessity of draining any one section or basin into any other one, and each one could be drained perfectly, and maintained in a healthy and habitable condition.

The general subdivision of the city into drainage sections and basins, may be outlined as follows:

The Upper Line Canal to be continued through to a point where the land is higher than the level of Lake Pontchartrain, and to be leveed on both sides. The Dublin Street Canal to be enlarged, extended to the high land, and connected with the New Navigation Canal, and leveed on both sides. A new canal to be excavated, say through State Avenue, from the high land to a connection with the New Canal near Carrollton Avenue, with side levees; and another similar canal to be made on the line of Toledano street, connecting with the State Avenue Canal, where said streets intersect. The Melpomene Canal to be enlarged, leveed on both sides through to the Toledano Canal, and all the culverts on the west side of the New Canal to be closed. The front portion of the city above Triton Walk, or Delord street, higher than the lake level, to be connected, by means of cross canals and sewers, with the several canals connecting with the lake, including the New Canal. The several basins thus enclosed, which are below the lake level, to

have each its own local draining machine, of capacity sufficient for the drainage thereof.

The present Claiborne Street Canal, above the New Canal, if cleaned out, might be utilized to more advantage, than now, if the Melpomene draining machine was removed to the intersection ot said canal with the New Canal; in which case the Melpomene tail-race might be used for the interior drainage of the basin bounded by Claiborne and Toledano streets and the New Canal.

Between the New Canal and the Carondelet Canal, the front portion of the city above the lake level, should be drained, by means of sewers, directly into said canals; say above Canal street into one, and below Canal street into the other. The Bienville draining machine, as at present located on Hagan Avenue, would drain the section between the canals, to the ridge.

Back of Metairie Ridge the new Orleans Street Canal divides the area between the New Canal and Bayou St. John, to the lake, into two basins, or might do so, if disconnected with the cross canals. If the Bienville machine was made to discharge into the Bayou St. John, as formerly, the whole section back of the ridge, to the lake, might be made one basin, with a draining machine located at the lake end of the Orleans Street Canal, of sufficient capacity for its drainage independently.

Below the Carondelet Canal and Bayou St. John, after the People's Avenue Canal is extended through to high land and leveed on both sides, the city could be drained as follows: The city front into the Carondelet and the People's Avenue Canals, by means of cross sewers or canals, directly; thence to the ridge, by machines located at the junction of the Marigny Canal, with Bayou St. John and of Florida Walk, with the People's Avenue Canal, and by the London Avenue Draining Machine, as now. Back of the ridge, Gentilly, a large machine located at the Lake End of the London Avenue Canal, would drain the basin between Bayou St. John and People's Avenue.

It is now proposed to excavate a canal through Florida Walk, from Lafayette avenue to the Fisherman's Canal, or lower line of the city, with a levee on the outside of same; but, on the plan suggested in this paper, this canal should

either be leveed on both sides, or disconnected with the People's Avenue Canal, if to be leveed on the outside only. From the intersection of Florida Walk with the lower line of the city, a canal should be excavated to Bayou Bienvenue, and said bayou should be cleaned out to Lake Borgne. The drainage of the lower portion of the city can be best accomplished in that direction. If the levee is made on the outside only, of course, the Bayou Bienvenue would only be used for a tail-race, but, if the canal through Florida Walk, and along the lower line to a point near the Mississippi River, is leveed on both sides, then it could be made to afford a good navigable connection with Lake Borgne and the Gulf Coast, and be of great value to the Third District of the city. Connected with the People's Avenue Canal, also leveed on both sides, vessels could pass through it from Lake Borgne to Pontchartrain, and it is believed, there would be a tidal current through the canal between said lakes, sufficient to keep the water pure in it at all times. This canal might even be extended through Florida Walk and Marigny avenue to Bayou St. John, and, by leveeing Hagan Avenue Canal, to the New Canal.

In case of leveeing the lower line and Florida Walk canals, as suggested, on both sides, and thus completing a navigable, as well as a drainage outlet to Lake Borgne, the same system of interior drainage would be applied, as before mentioned, to the basin bounded by Lafayette avenue, the Fisherman's Canal, the river and Florida Walk.

The system of drainage herein proposed allows for the utilization of all existing canals, and of those now being excavated and projected. The plan is a modification of the one now being carried out, but it is thought that it would be more effective, more reliable and certain of good results, and less expensive for its maintenance. It would dispense with locks at the Lake ends of the canals, and allow for the immediate or speedy completion of the preliminary works for draining any one or more sections or basins. The present proposed plan adopted by the city, as I understand it, is—after the completion of the protection levee around the whole city, which will require several years,—to erect draining machines of very great power and capacity at points along the

Lake shore; to place locks in the Lake ends of the new canal and Bayou St. John; to remove the interior levees, and then to drain the whole inclosed portion of the city, as one great basin, including the canals, several feet below the level of Lake Pontchartrain, and to maintain the water, inside, at the reduced level, permanently.

To complete the drainage of New Orleans on this plan will take many years, and, in case of the failure at any time of, or a crevasse, in the outer levee, the whole of the interior great basin would be exposed to inundation.

If there were no other draining-machines than those on the Lake shore,—the interior ones being removed,—a heavy fall of rain would flood that portion of the city at the foot of the slope from the river, long before it could reach the draining-machines; for the water would rise in the low grounds until it had obtained a head sufficient to cause it to flow to them. During the continuance of the rain, and for some time afterwards, therefore, that part of the city nearest the foot of the slope would certainly be inundated to some extent, as is frequently the case now. To remedy this, draining machines are needed near the foot of said slope, to promptly discharge the water, as fast as it comes, into the canals leading to the Lake. Small draining-machines, one at each end of Galvez street, next the new and old navigation canals, to elevate and discharge rain and sewage water into said canals, would be found very advantageous.

To remedy the objection that the navigation canals would be made offensive by the flow or discharge of sewage into them, it is suggested that a line of pipes be laid from the river to each basin. River water could then be made to force out the foul water into the Lake, whenever deemed necessary or expedient.

To the objection that the canals would be filled up, it is suggested that dredging-machines would remove all accumulations rapidly and cheaply, when required.

The new canal is the property of the State, and the Legislature should provide a way for the city to use it for the purpose of drainage, and the old canal and Bayou St. John might be acquired and used in the same manner, under an agree-

ment to keep its water from being offensive by means of river water, and to keep it dredged out and of a given depth throughout at all times.

All will admit the necessity of doing all that may be done to improve the sanitary condition of our city, to remove the causes of disease and the spread of epidemics. The plentiful use of river water, thorough drainage, and the prompt use of disinfectants, will do much towards the accomplishment of, or to promote the end sought, and the advocacy of the means to that end are thought to be legitimately within the province of the Board of Health.

Respectfully submitted,

G. W. R. BAYLEY.

CHEMIST'S REPORT.

ALFRED W. PERRY, M. D.

The prevalence at different periods of the year of three diseases likely to become epidemic, necessitated my visiting personally most of the places where the cases occurred, to direct the manner and extent of the disinfection. This consumed so much time that I was unable to make those chemical researches on sanitary subjects which had been mapped out at the beginning of the year.

I have made twenty-four analyses of air, taken from different parts of the city, in the months of June, July, August, September and November. They generally show a high degree of air impurity. The analyses marked with a star were from the vicinity of yellow fever cases. The air was collected in the street, or in some open lot, generally 2 to 4 feet above the ground.

The air in the vicinity of the yellow fever cases does not seem to be more impure than in other places.

Analyses of Air in New Orleans in 1873.

Date.	PLACE.	Time.	Wind.	Conditions.	Grammes Ammonia per 1,000,000 Cubic Metres Air.	Grammes Alb. Ammonia per 1,000,000 Cubic Metres Air.	REMARKS
June 4	Corner Perdido and Liberty streets.	9 a. m.	Fresh.	No smell.	270	720	
" 2	131 Rousseau street.	10 a. m.			270	360	
" 10	183 Jackson street.	10 a. m.			231	99	
" 12	Corner Magazine and Seventh streets.	10 a. m.			100	150	
" 16	Villere, b. C'mhouse & Bienville sts.	10 a. m.		Gutters filthy; no smell.	200	200	
" 17	" St. Louis & Toulouse sts.	10 a. m.		" "	288	288	
" 18	Derbigny, b. C'mhouse & Bienville sts.				224	304	
July 1	Corner Conti and Franklin streets.		S. fresh.		128	144	
" 3	Old Magazine and St. Mary streets.				200	176	
" 12	Corner Greatmen and Port streets.	9 a. m.	W. fresh.	Stagnant water in vicinity.	280	520	
" 15*	" Franklin and Customhouse.		N. E.	Gutters filthy.	240	400	
Aug. 13*	Levee st., bet. Fifth and Sixth sts.	8 a. m.	W. fresh.	off the river.	99	264	
" 15*	Tchoupitoulas, b. First & Second sts.	9 a. m.	W. light.	"	99	231	
" 16*	41 Washington street.	9 a. m.	"	"	165	297	
" 30*	Corner Rousseau and First streets.	9 a. m.	No wind.		600	400	
Sept. 9*	" " and Saraparu streets.	9 a. m.	N.E. fresh.		200	350	
" 11*	" Josephine and Rousseau.	9 a. m.	E. "		280	560	
" 12*	" Chippewa and Fourth streets.	9 a. m.	F. "		216	560	
Oct. 29*	" Rousseau and Adele streets.	9 a. m.	N. W. "		240	720	
Nov. 7*	" " Saraparu streets.	9 a. m.	" "		270	560	
" 12*	" Water and Josephine streets.	9 a. m.	" "		240	800	Very dusty day.
" 13	Wharf, between Sixth & Seventh sts.	9 a. m.	N. E. "	off river.	160	180	
" 14	Corner Lafayette and Liberty sts.	9 a. m.		Gutters pretty dirty.	300	560	Dusty.
" 15	" Liberty and Gravier streets.	9 a. m.	No wind.		180	270	

ALFRED W. PERRY, M. D.

ERRATA FOR METEOROLOGICAL TABLES.

January 13th, terrestrial radiation, read 51 deg. for 57 deg.
February 11th, relative humidity, 2 p. m., read 87 for 84.
March 7th, relative humidity, 2 p. m., read 65 for 55.
March 30th, terrestrial radiation, read 47 deg. for 49 deg.
March 31st, range of temperature, read 15.5 deg. for 16.5 deg.
April 29th, relative humidity at 2 p. m., read 66 for 60.
May —, mean barometer at 2 p. m., read 29 in. for 26 in.
July 8th, solar radiation, read 137 deg. for 136 deg.
July 27th, barometer at 7 a. m., read 29.06 in. for 29.09 in.
August 7th, maximum temperature, read 84.5 deg. for 84.8 deg.
August 15th, meau barometer, read 29.927 in. for 29.972 in.
August 25th, rain fall, read .12 in. for .21 in.
October 30th, mean temperature, read 51.8 deg. for 57.1 deg.
November 8th, barometer at 2 p. m., read 30.14 in. for 30.04 in.

TABLE "A."

Yearly mean range of temperature, read 14.027 deg. for 14.029 deg.

TABLE "D."

Mean at 23 feet elevation, read 50.84 deg. for 59.84 deg.

MEAN TEMPERATURE BY REGISTERING THERMOMETERS.

May, read 75.19 deg. for 75.16 deg.
August, read 82.28 deg. for 82.38 deg.
September, 79.56 deg. for 79.53 deg.
December, 56.92 deg. for 56.95 deg.
Year, read 69.014 deg. for 69.019 deg.

TABLE "F."

Mean range for year, read 14.6 deg. for 14.0 deg.

METEOROLOGICAL REPORT.

ISAAC STATHEM.

NEW ORLEANS, December 31st, 1873.

To the Board of Health:

GENTLEMEN—The Meteorological observations commenced at this office in 1872, have been continued uninterruptedly, during the past year.

Tables showing the results of these observations, have been prepared for each month of the year, and are submitted herewith.

The exposure to which the maximum and minimum thermometers were subjected last year, not having been deemed fully satisfactory, arrangements were perfected early in the present year whereby these instruments were subjected to an exposure more fully securing the conditions necessary to record the extreme daily range of temperature, an important element considered in connection with the health of a community.

An instrument shelter was constructed at the north end of the building 159 Canal street, upon the principle of the Louvre Box, invented by Mr. Stevenson, and in general use by the observers of the Scottish Meteorological Society—the form recommended by Buchan.

The shelter is placed at an elevation of 23 feet above the ground, is double louvre-boarded on the four sides, the boards (three-fourth of an inch in thickness), being made to slant downwards, both in and outside, at an angle of 45 degrees, n such manner as to afford a free circulation of air through the shelter, and at the same time to exclude the direct heat of the sun, as well as reflected heat from adjacent walls.

The shelter is provided with a double roof, the upper about one and one-half feet above the lower one, and open at the sides.

The upper roof is exposed to the sun for a few hours each day.

The nearest wall which receives the direct rays of the sun is about ten feet distant, and is thought to but slightly affect the reading of the thermometers, if at all, owing to the thickness of the louvre board protection.

This exposure, though not perfect, is probably as satisfactory as can be obtained within the closely built portions of the city.

The record of temperature, as recorded by the maximum and minimum thermometers, is the one published, as showing nearer the true mean, as well as the highest and lowest temperature during the twenty-four hours.

The record obtained by tri-daily observations of the ordinary thermometers is preserved, but not published, with the exception of the monthly mean values, which are shown in table D, in comparison with the mean temperature obtained from the registering thermometers.

The mean temperature for the year 1873, was 69.019 degrees.

The temperature during the summer months was lower than is usual for New Orleans, with the exception of a period of about ten days in July, when the temperature was excessively high, the maximum being 98° on July 8th. The record shows the highest mean temperature for this month also, 83.57°.

The lowest temperature during the year occurred on the night of January 18th—25°.

The record for the six months ending Dec. 31st, 1872, shows a higher temperature for the months of July, August, September and October than that of 1873, but lower during the months of November and December.

An examination of the line of mean temperature on the chart accompanying the annual report of the Board, shows the same regular temperature during the months of June, July, August and September, as is usual in New Orleans, but sudden and extreme changes during the early and late months of the year.

The daily range of temperature was excessive during the spring months, having been greatest during March and April, and least in the month of September. On March 25th, the temperature fell from 80° F., the maximum at about 3 o'clock, to 43° F. at 12 P. M., a range of 37° in ten hours.

On April 8th also, there occurred a range of 30.5° between the maximum and minimum temperatures of the day.

The monthly mean range was about the same (12° F.) for the months of January and December, and lower than during any

other month of the year, with the exception of the month of September.

During the month of March, the daily range was in excess of the monthly mean, on fifteen days of the month. In April on seventeen days of the month.

The average or mean range for the year was 14.027°.

From June 1st, throughout the rest of the year, the temperature of the hydrant water was tested daily, as affording an approximation to the temperature of the soil at the depth at which the small water pipes are laid.

The test was made at 8.30, A. M., the water in the hydrant being allowed to run for a few minutes before its temperature was taken, on the presumption that the water, having remained during the night in the small pipe leading from the street main to the hydrant, would have acquired the temperature of the soil at that depth.

The record shows a gradual rise in temperature until about July 12th, when 84°, the highest point registered during the season, was reached.

A mean temperature of 78° to 80° was maintained during the months of July, August and September; but during the months of October, November and December, a gradual decline in the temperature was recorded to 48° on December 31st, the lowest point reached during the season.

The daily maximum direct heat of the sun, as shown (approximately) by the black-bulb thermometer, has been in striking contrast to that of 1872. The exposure of the thermometer has been in every respect the same as during the previous year, *i. e.* at an elevation of 25 feet above the ground, yet the result is widely dissimilar.

The highest degree of radiation registered in 1873, was 139° —on August 17th—and with this exception, 138° was the highest registered during the year.

In July, 1872, nineteen observations, showing an excess of 138°, were recorded, and the mean for the month was 137.9° against a mean of 130.4°, for the corresponding month of 1873.

In August, 1872, eighteen observations were in excess of 138° the highest being 150°, and the mean for the month was 139.-

29°, against a mean of 132.58° for the corresponding month of 1873.

On September, 1872, eight observations were recorded in excess of 138°, and the monthly mean was 134-60°, against 127.-57° in 1873.

This comparison of the records of the two years, shows a decrease of about seven degrees in the mean of solar heat for each of the three months—August to September—in 1873, as compared with the former year.

It is noticeable that the maximum of radiation is not cotemporaneous with the maximum of temperature, nor with the least humidity of the atmosphere.

On July 7th, when occurred, with but one exception, the highest degree of radiation registered during the year (138°), the maximum temperature was one-half degree lower, and the relative humidity slightly higher, than on the following day, when occurred the highest maximum temperature recorded during the year; and again on Aug. 17th, when occurred the highest degree of radiation recorded during the year (139°), the maximum temperature was 6½ degrees lower, and the humidity of the atmosphere 10 per cent. higher than on July 8th.

An examination of the record of the maximum solar heat recorded at the Central Park Observatory, New York City, during the month of August, 1873, shows a higher maximum for that city than was recorded in New Orleans. On two days of the month, the thermometer recorded 145°, and on ten days of the month ranged higher than 139°. The mean for the month, however, was two degrees lower than in New Orleans.

In 1872, the experience of the two cities with regard to solar heat was the reverse.

This variation in the amount of solar heat received in different years, is not unusual.

In the town of Calcutta, during the year 1870, the mean of the daily maxima of solar heat was 129.96°.—See Table F.

In the following year (1871) the mean was 139.60°—an increase of 9.64°.

The mean temperature was eight-tenths of a degree higher in 1870 than in 1871, the mean humidity of the atmosphere 4 per cent. greater, and the amount of rain about 33 per cent. in excess of that of the year of least solar heat. Owing to the

great difference in the temperature of terrestrial radiation obtained under different conditions of exposure, it is deemed advisable to state those under which the records offered is obtained; prefacing the same with the acknowledgment that the record is of comparatively little value for the months of January, February, and the first fifteen days of March. During this time, a portion of the spirit was detached from the column in the tube, causing an error in the readings of the instrument, estimated roughly at from three to five degrees.

On March 15th, the thermometer was repaired and remained in excellent order throughout the year.

The instrument is a minimum spirit thermometer, the bulb being placed six inches above the ground, and owing to the proximity of buildings, is only exposed to about five-tenths of the sky. Under these conditions, the difference between the monthly and yearly means of the minimum temperature at 23 feet elevation, and at 6 inches above the ground, as compared in table D, is less than it would have been, had a better exposure of the radiation thermometer been maintained.

Table D shows a comparison of the monthly means obtained from these different altitudes, and also the monthly mean of observations of the ordinary thermometer at 7 o'clock, A. M at an elevation of 5 feet.

The yearly mean of the temperature of radiation is but 2.9 deg. lower, than at the higher exposure; but the mean from April to December, inclusive, omitting those months when the value of the readings of the radiation thermometer was vitiated, is 3.9 lower.

It is noticeable that during cloudy, humid weather, the temperature recorded at 6 inches above the groundis occasionally the same as at 23 feet elevation, frequently but a few degrees lower; but during calm, clear nights, the difference is from 8 to 10 degrees: occasionally still greater.

In the tables submitted it will be observed that in occasional instances the minimum of radiation recorded is much higher than the minimum of temperature.

The observation of both the minima of radiation and temperature is made at 7 o'clock, A. M., and recorded for the day on which the observation is made, the minimum in steady wea-

ther occurring at about 4 o'clock, A. M., but during the past year, upon the occurrence of a sudden fall of temperature during the day, a special observation was made of the temperature at 12 P. M., which was recorded as the minimum of the day. This special observation not having been extended to the radiation thermometers, will account for the discrepancy mentioned.

The barometric record included in the tables, is obtained from observations of the self-registering aneroid, as during the previous year.

During the months of September and October, the clockwork of the barometer attachment was out of repair, and the record for these months was kindly furnished by Serg't. Nelson Gorom, in charge of the U. S. Signal Station at this city.

As during the year previous, oscillations of the barometric pressure were greatest during the winter months, the months ot February and November showing each an exceptional daily range in excess of three-tenths of an inch.

The highest pressure recorded during the year, occurred on March 5th—30.61 inches, and the lowest Nov. 18th—29.61 in.; a range of ~~0.93~~ inches within the year.

1,00

The month of December shows the highest mean pressure—30.194 inches.

The pressure during the month of May was remarkably low, the monthly mean pressure having been 29.91 inches.

With the exception of but two days during the month, the barometer indicated a pressure below 30 inches.

During the month of June, the pressure was also low, the mean having been below 30 inches, but higher than during the previous month.

The pressure has occasionally been observed to be lower immediately after the prevalence of storms, than previous to or during their presence, after the weather has become clear and the wind changed to a westerly direction.

This phenomenon was particularly noticeable in the month of November.

On November 16th, the pressure at 7, A. M. was 30.105 in., falling during the day to 29.80 in. at 9, P. M. During the day the wind was from the southwest, and the weather gusty and threatening, with occasionally light showers of rain, with high

temperature and humidity. On the night of the 16th, the wind changed to northwest, and the temperature fell 19 deg.; the weather on the 17th presenting all the characteristics usual to high pressures. Nevertheless, the barometer continued to show a decline of pressure through the 17th, to 29.61 in. at 7, A. M. on the 18th (the lowest pressure recorded during the year), when it rose rapidly to 29.91 in. at 9, P. M. on the 18th. The wind gradually increased during the 18th, to the force of a gale at 9, P. M.

A violent storm was prevailing over the western and middle States on the 17th, at the time the pressure was lowest in New Orleans, which was doubtless connected with this singular action of the barometer.

The ever varying percentage of humidity of the atmosphere as compared with saturation, is strikingly shown by the line on the chart accompanying the annual report of the Board of Health. The line represents the mean of three daily observations deduced from observations of the hygrometer, by Glaishers's tables.

Table A shows a comparison of the monthly and yearly means at the hours of observation (7 o'clock, A. M., and 2 and 9 P. M.)

The excess at 7, A. M. over 9, P. M. for the year, was 4.4, and between 7, A. M., and 2, P. M., the excess at the former hour was 20.37.

The month of April shows the lowest mean humidity 69.03, and the month of June, the highest, 79.03, an excess of 10 per cent.

The mean for the year was 75.40, which is probably in excess of the average for New Orleans. The mean for Great Britain is about 73.

During the summer months, two rain-gauges were maintained, one about three-fourths of a mile from the river, and one at a distance of one and three-fourths miles; with a view to ascertain the difference in the amounts of precipitation at these relative distances from the river. The lack of similarity in the conditions of exposure of the two gauges, prevents a comparison of the results, except in a general sense.

The record of measurement by the gauge farthest from the river is the one published.

This exposure is objectionable, as regards elevation, the approved location being 12 inches above the ground; but the exposure is the best that could (under the circumstances) be obtained, owing to the nearness of protection, the rule being to expose the gauge not nearer to any protection than the distance of a line drawn from the gauge to the top of such protection.

The gauge nearest the river is exposed at an elevation of about 15 feet. The exposure has this objection, that it is too much "protected" from the north and northeast, the protection having the effect to diminish the amount of rain measured during storms coming from that direction. During the remarkable rain-fall of May 5th, the wind being about northeast, and of considerable force during the storm, this gauge contained $7\frac{1}{10}$th inches, whilst the gauge fully exposed measured 8 inches.

The general sum of the rain-fall was slightly larger at the greater distance from the river; which was probably due to the gauge being exposed nearer to the ground, as well as to the protection before mentioned.

The decrease in the amount of rain measured as the gauge is exposed in height above the ground, as compared with 12 inches above the surface, is greater than is popularly supposed. The record of rain-fall at Calcutta during the years 1870 and 1871 (Table F,) shows the rate of decrease to have been 9 per cent. in each of those years, at the exposure 70 feet above the ground, as compared with one near the surface, although the rain-fall was about 33 per cent. greater in 1871 than in 1870.

From experiments made at Calne, Eng., the rate of decrease was found to be $\frac{6}{10}$ths of an inch at a height of 20 feet as compared with one foot.

The gauges used during the past year are of the ordinary cylinder pattern, such as those used by the volunteer observers of the Smithsonian Institution. This form of gauge is objectionable, for measuring accurately very light rains.

It is recommended that in future the funnel-shaped gauge, in use by the U. S. Signal Service, be used, as this gauge possesses the advantage of greater accuracy of measurement of

light rains, and affords a greater protection against evaporation.

The rule adopted in observing the rain-fall, is to measure the water in the gauge at 7 o'clock, A. M., and to enter the amount against the previous day. The rule possesses this objection, that rain falling in the morning previous to 7, A. M., is entered against the previous day, when no rain may have fallen on that day; the operation of the rule tending to mislead one in examing the record to ascertain the condition of the weather on a particular day; but the rule seems to offer less objection than any other proposed.

In the classification of rainy days (Table E), all days when the rain-fall amounted to one-hundredth of an inch were included as such.

During the first four months of the year, the rain-fall was light, and especially during the month of April, no rain having fallen from the 15th to the 30th, inclusive; and but $1\frac{38}{100}$ths in. during the month.

The month of May was ushered in by a rain-fall of $2\frac{15}{100}$ths in.; a welcome visitation after the long period of wind and dust previously experienced.

On May 5th occurred the memorable precipitation of 8 inches of rain, the greater part of which fell in about four hours of time—from 6 to 8 P. M. of the 5th, and 3 to 5 A. M. of the 6th. This was followed by continued rains during May, June, July and August; the greatest precipitation, however, having occurred during the month of May, aggregating nearly 22 inches. The greater number of rainy days occurred in June and July, the rains being more continuous in those months.

The record shows a period of eight consecutive days of rain in the month of June, and in July, thirteen days.

The sum of rain-fall for these four months was 47 inches. The total rain-fall during the year was $75\frac{13}{100}$ths inches.

The effect of such unusual rain-fall upon vegetation was apparent in the city markets; the supply of vegetables usually offered for sale therein in abundance during the summer months, being limited in quantity, and of poor quality, during the season.

Travel upon the unpaved streets of the city was rendered so precarious as frequently to prevent the passage thereon of light vehicles, much to the annoyance of persons thus deprived of their daily supply of bread, milk, and such articles of consumption as are required to be delivered regularly.

The rain-fall for the last four months of the year was light, as compared with the four months preceding, aggregating for this period less than 14 inches.

The observations of the direction and force of the winds during the year are published as possessing a tolerable degree of accuracy, but not strictly so, particularly as regards the direction. The observations were made without the aid of a wind vane, and no doubt contain errata.

The observations have been made with care, however, and are in the main correct.

The force of the winds, as recorded, is estimated upon a scale ranging from one to ten, and the occurrence of calms indicated by the figure 0.

Owing to the equation of observers, this method of ascertaining the force of the winds, must show results somewhat at variance; hence, as correct data of both the direction and force of the winds is desirable, it is recommended that a suitable anemometer be added to the meteorological instruments already in use by the Board of Health.

As the uniformly western direction of the very high clouds is still an unsettled question, the experience of the past years' observations is offered as some evidence against such conclusion.

Of 52 observations of cirri, 20 were from the west, 6 northwest, 2 southwest, 1 northeast and 1 due east.

Those observations when the direction was recorded as west, might frequently have been with equal propriety recorded as southwest, as the motion was observed to have been from a direction between those points.

On August 24th, cirri were observed during the day, moving rapidly—estimated at 3 of the scale, 0 to 10—from a direction due east. The velocity of the higher clouds is estimated upon an apparent motion corresponding with that of the lowest form of cloud; hence, considering the great elevation of cirri, their

actual velocity at this time must have been great to show an *apparent* motion as high as that recorded.

The direction of cirri of the second class—cirrocumulus and cirrostratus—in 119 observations, when motion was observed, was more variable. In 72 observations the direction was due west, 16 southwest, 11 northwest, and 20 from other points.

A memorandum record has been kept of such casual phenomena as may be of interest for reference in future.

It is possible that such phenomena occasionally escaped observation; hence the actual number of such occurrences may have exceeded those enumerated in the table.

The latest frost observed in the spring of 1873, occurred on the night of March 5th, causing injury to the early fruit trees, which were in bloom.

The first occurrence of hoar frost in the autumn of 1873, was observed on the morning of October 30th. The first lowering of the temperature of the dew-point to 32° F., rendering frost possible, occurred on the night of October 28th; but owing to the prevalence of high winds, condensation did not take place.

On the night of November 19th, hoar frost again occurred, and a slight formation of ice took place in the gutters of the unpaved streets; the mimimum of temperature at 6 inches above the ground being 27°.

During the month of December, hoar frost occurred on the 19th, 25th, 27th and 28th, and on the night of the 29th, the ground was frozen to the depth of $\frac{4}{10}$ths of an inch.

Respectfully submitted,

ISAAC STATHEM.

JANUARY.

Day.	Barometer. 7 a. m.	Barometer. 2 p. m.	Barometer. 9 p. m.	Barometer. Mean.	Temperature. Maximum.	Temperature. Minimum.	Temperature. Range.	Temperature. Mean.	Radiation. Solar.	Radiation. Terrestrial.	Relative Humidity. 7 a. m.	Relative Humidity. 2 p. m.	Relative Humidity. 9 p. m.	Relative Humidity. Mean.
1	30.18	30.13	30.02	30.086	65	55	10	60·0	113·0	53.0	96	79	84	86
2	29.83	29.84	29.89	29.862	66	61	5	63.5	111.0	60.0	93	72	81	82
3	30.00	30.07	30.07	30.052	65	55	10	60.0	109.0	46.5	92	66	69	76
4	30.03	29.80	29.80	29.857	66	52	14	59.0	72.0	48.5	89	90	100	93
5	29.92	30.00	30.10	30.030	57	45	12	51.0	100.0	44.5	71	69	70	70
6	30.25	30.26	30.28	30.267	50	37	13	43.5	95.0	37.5	83	64	85	77
7	30.25	30.20	30.12	30.172	52	40	12	46.0	93.5	39.0	91	81	88	87
8	30.12	30.14	30.16	30.145	58	47	11	52.5	107.0	45.0	96	81	73	83
9	30.23	30.32	30.33	30.302	50	44	6	47.0	73.0	45.5	58	78	61	66
10	30.41	30.51	30.50	30.480	51	40	11	45.5	102.0	37.5	68	50	65	61
11	30.52	30.54	30.50	30.515	56	40	16	48.0	105.0	35.0	86	66	82	78
12	30.49	30.45	30.39	30.430	61	47	14	54.0	114.5	43.0	92	61	81	78
13	30.30	30.28	30.22	30.255	64	47	17	55.5	117.5	57.0	86	72	85	81
14	30.15	30.08	30.00	30.057	65	55	10	60.0	118.0	52.5	92	76	89	86
15	29.93	29.90	29.80	20.857	71	62	9	66.5	109.0	61.0	91	83	91	88
16	29.88	30.00	30.08	30.010	58	45	13	57.5	63.0	48.0	85	61	80	75
17	30.11	30.17	30.19	30.165	48.5	35	13.5	41.8	99.5	38.5	77	53	60	63
18	30.25	30.27	30.25	30.255	44	25	19	34.5	86.5	33.0	60	47	65	57
19	30.28	30.28	30.24	30.260	46.5	28	18.5	37.2	95.5	31.0	==	52	83	==
20	30.16	30.10	30.03	30.080	63.5	40	23.5	51.7	109.0	39.0	84	71	81	79
21	30.00	30.00	29.98	29.990	62.5	51	11.5	56.8	114.5	51.5	89	84	76	83
22	29.94	29.85	29.79	29.843	64.5	55	9.5	59.7	77.5	55.0	89	82	84	85
23	29.80	29.89	29.98	29.912	59	44	15	51 5	102.0	41.5	65	49	52	55
24	30.12	30.18	30.17	30.160	50	32	18	41.0	93.0	36.0	64	54	67	62
25	30.17	30.17	30.00	30.085	57	34.5	22.5	45.8	103.0	35.0	80	68	80	76
26	29.90	29.91	29.89	29.897	56	50	6	53.0	62.0	53.0	92	83	85	87
27	29.90	29.95	29.995	29.960	51	41	10	46.0	99.0	45.5	87	79	78	81
28	30.00	30.04	30.08	30.050	48.5	43	5.5	45.7	53.5	44.5	80	84	82	82
29	30.11	30.18	30.17	30.157	38	29	9	33.5	43.5	35.5	74	72	67	71
30	30.15	30.17	30.17	30.165	47	31	16	39.0	57.0	37.4	==	76	80	==
31	30.20	30.25	30.23	30.220	53	38	15	45.5	105.0	34.5	90	70	78	79
M	30.115	30.126	30.110	30.115	56.26	43.50	12.76	49.88	96.87	43.82	82.76	70.52	77.19	76.80

JANUARY.

RAIN FALL.	CLOUDS.						WINDS.					
	7 a. m.		2 p. m.		9. p. m.		7 a. m.		2 p m.		9 p. m.	
Inches.	Amn't.	Kind.	Amn't.	Kind.	Amn't.	Kind.	Direction.	Force.	Direction.	Force.	Direction.	Force.
.00	10	St.	10	St.	3	St.	S. E.	1	E.	3	E.	3
1.05	10	Nim.	0		0		N.	4	W.	3	W.	1
.00	0		0		0		W.	1	W.	3	W.	1
1.37	10	Cir. St.	10	St.	10	St.	S. E.	2	S. E.	2	S. E.	1
.00	0		0		0		W.	1	W.	2	W.	2
.00	0		0		0		N.	2	N.	3	0	
.00	5	Cir. St.	0		0		N. E.	2	N.	2	E.	2
.00	0		10	St.	10	St.	S. E.	1	N. E.	3	N.	4
.00	10	St.	10	St.	9	Cir.Cu	N.	4	N.	4	N.	2
.00	0		0		0		N.	1	N.	2	N.	1
.00	0		0		0		N.	1	N.	1	0	
.00	1	Cir. St.	9	Cir. Cu	0		S. E.	1	S. E.	1	E.	1
.00	0		2	Cu.	0		E.	1	S.	1	0	
.00	0		1	Cu.	10	St.	0		S. E.	1	E.	2
2.01	10	Cir.	10	Cu. St.	10	Nim.	S. E.	2	S. E.	4	E.	5
.00	10	St.	10	St.	10	St.	N.W.	3	N.W.	5	N.	4
.00	0		0		0		N.	3	N.	3	N.	4
.00	0		0		0		N.	1	N.	3	E.	1
.00	0		3	Cir.	0		W.	1	E.	1	S. E.	2
.01	10	St.	5	Cir. St.	0		S. E.	1	S.	3	S.E.	3
.00	0		3	Cu.	0		S.	1	N.	2	S.E.	1
.00	10	St.	10	St.	10	St.	S. E.	2	S. E.	3	S.E.	1
.00	0		0		10	St.	W.	2	W.	4	N.W.	4
.00	0		0		0		W.	1	N.	1	W.	1
.11	0		10	Cu. St.	10	St.	E.	2	S. E.	2	S. E.	3
.35	10	St.	10	St.	10	St.	W.	3	N.W.	1	0	
.00	10	St.	10	Cir. St.	10	St.	N.	3	E.	3	N. E.	3
.15	10	St.	10	St.	10	St.	N. E.	3	N. E.	3	N. E.	4
.00	10	St.	10	St.	10	St.	N.W.	4	N.W.	3	N.W.	3
.00	10	St.	10	Cir. St.	10	St.	N.W.	1	E.	2	W.	1
.00	10	St.	0		0		N. E.	1	5		0	
5.04	4.[illegible]		4.93		4.58			1.87		2.40		2.30

FEBRUARY.

Day.	Barometer.				Temperature.				Radiation.		Relative Humidity.			
	7 a. m.	2 p. m.	9 p. m.	Mean.	Maximum.	Minimum.	Range.	Mean.	Solar.	Terrestrial.	7 a. m.	2 p. m.	9 p. m.	Mean.
1	30.25	30.33	30.30	30.295	60.5	43.0	17.5	51.7	112.0	42.5	84	71	81	78
2	30.31	30.34	30.29	30.307	60.0	47.0	13.0	53.5	112.0	48.5	71	64	74	69
3	30.20	30.16	30.11	30.145	70.0	50.0	20.0	60.0	118.0	49.0	93	73	82	83
4	30.10	30.14	30.17	30.145	72.0	55.0	17.0	63.5	122.0	55.0	80	71	80	77
5	30.19	30.21	30.17	30.185	72.0	64.5	7.5	68.3	122.0	60.0	93	78	82	84
6	30.09	30.02	30.04	30.047	70.0	49.0	21.0	59.5	95.0	65.0	88	72	74	78
7	30.11	30.10	30.05	30.078	68.5	44.0	24.5	56.3	111.0	45.0	91	60	69	73
8	30.05	30.12	30.22	30.152	65.0	54.5	10.5	59.7	109.0	53.5	86	62	51	66
9	30.37	30.45	==	30.410	58.0	46.0	12.0	52.0	108.0	42.0	56	51	72	60
10	.....	30.25	30.19	30.207	63.5	44.0	19.5	53.7	113.5	42.0	84	71	79	78
11	30.01	29.84	29.70	29.812	70.0	56.0	14.0	63.0	79.0	41.0	87	84	88	87
12	29.71	29.82	29.84	29.802	62.5	50.0	12.5	56.3	109.0	58.0	73	56	68	66
13	30.00	30.03	30.06	30.037	68.0	44.0	24.0	56.0	106.5	51.0	84	66	81	77
14	30.10	31.10	30.08	30.090	68.0	53.0	15.0	60.5	94.5	44.5	86	82	87	85
15	29.94	29.93	29.89	29.913	75.0	60.0	15.0	67.5	109.0	53.0	94	79	89	87
16	29.97	30.02	30.04	30.018	67.0	53.5	13.5	60.3	115.5	52.0	66	71	73	70
17	30.09	30.08	30.07	30.077	67.0	53.0	14.0	60.0	119.5	50.0	83	68	81	77
18	30.07	36.07	30.07	30.070	72.0	57.0	15.0	64.5	117.0	57.0	93	88	88	70
19	30.10	30.14	30.13	30.125	77.0	66.0	11.0	71.5	127.0	==	93	74	83	83
20	30.08	30.02	29.89	29.970	79.0	66.5	12.5	72.7	128.0	65.0	91	59	88	79
21	29.80	29.93	29.93	29.898	68.0	55.0	13.0	61.5	113.5	66.5	72	55	62	63
22	30.03	30.03	30.00	30.015	64.5	45.0	19.5	54.8	111.0	46.0	70	76	80	75
23	30.10	30.17	30.10	30.117	58.0	45.0	13.0	51.5	108.0	==	60	43	63	55
34	30.19	30.16	30.11	30.142	63.0	44.0	19.0	53.5	107.0	45.0	65	53	78	65
25	30.07	30.02	30.00	30.022	75.0	57.0	18.0	66.0	121.0	57.0	90	68	=	=
26	29.88	29.87	29.89	29.883	81.0	68.0	13.0	74.5	126.0	==	91	73	79	81
27	30.12	30.18	30.20	30.175	65.0	50.0	15.0	57.5	111.0	50.0	54	38	47	46
28	30.28	30.29	30.22	30.252	62.0	45.0	17.0	53.5	111.0	45.0	51	40	64	52
M	30.082	30.097	30.065	30.084	67.91	52.32	15.59	60.117	112.00	51.34	79.22	65.55	75.62	73.49

FEBRUARY.

RAIN FALL.	CLOUDS.						WINDS.					
	9 a. m.		2 p. m.		9 p. m.		7 a. m.		2 p. m.		9 p. m.	
Inches.	Am'nt.	kind.	Am'nt.	Kind.	Am'nt.	Kind.	Direction.	Force.	Direction.	Force.	Direction.	Force.
.00	3	Cir. St.	3	Cir. St.	1	Cir.	E.	1	N.	1	o	
.00	6	"	0		0		E.	1	E.	1	S. E.	2
.00	4	Cu. St.	1	Cu.	3	Cir.	S. E.	2	S. E.	3	S. E.	2
.00	10	Cir. St.	5	Cu.	1	Cir.	S.	1	W.	3	S. W.	1
.25	10	Cir. St.	3	Cu.	0		S. W.	1	W.	3	S. W.	1
	10	Cu. St.	10	Cir.								
.40	3	Cu. St.	10	St.	0		S. W.	3	N. W.	3	N. W.	1
			1	Cir. St.								
.00	1	Cir.	3	Cir.	4	Cir.	S. W.	1	W.	2	o	
.00	10	St.	9	Cir.	0		S. W.	1	N. W.	4	N. W.	4
.00	4	Cir.	2	Cir.	0		N. W.	4	N. W.	2	S. E.	1
.00	1	Cir.	3	Cu.	2	Cir.	N. E.	1	S. E.	3	S. E.	3
	5	Cir. St.										
.70	5	St.	10	St.	10	St.	S.	1	S. E.	4	W.	4
.00	0		0		0		W.	3	W.	4	W.	1
.00	0		8	Cu.	0		S. E.	1	S. W.	3	S.	2
.60	4	Cir.	10	St.	10	St.	S. E.	1	E.	3	E.	4
.10	10	St.	9	Cu. St.	3	St.	S. E.	4	S. E.	4	S.	6
.00	0		0		0		W.	3	W.	3	o	
	2	Cir. St.										
.00	8	St.	4	Cir.	0		N. E.	1	S. E.	2	S. E.	1
.15	5	St.	10	St.	10	Nim.	S. E.	1	S. E.	2	S. E.	2
.00	10	St.	7	Cu.	9	St.	S. E.	2	W.	3	E.	2
.00	7	St.	3	Cir. St.	10	St.	S. E.	2	S. W.	3	W.	4
.00	9	St.	6	Cir.	0		N.	4	N.	4	W.	1
.00	8	Cir. St	3	Cir. St.	10	St.	N.	1	E.	2	E.	1
.00	10	Cir.	2	Cir.	3	Cir. St.	N.	3	N.	2	E.	1
.00	5	Cir. St.	10	St.	10	St.	N. E.	3	E.	2	E.	1
.00	10	St.	8	Cu. St.	10	St.	E.	2	W.	2	S.	2
.00	8	Cir. St.	8	Cu.	9	St.	S.	2	S. W.	4	W.	3
.00	9	Cir.	1	Cir. St.	0		o		N.	3	N.	3
.00	0		0		0		N. E.	3	E.	2	S. E.	1
2.20	6.32		5.32		3.75			1.96		2.75		2.16

MARCH.

Day.	Barometer. 7 a. m.	Barometer. 2 p. m.	Barometer. 9 p. m.	Barometer. Mean.	Temperature. Maximum.	Temperature. Minimum.	Temperature. Range.	Temperature. Mean.	Radiation. Solar.	Radiation. Terrestrial.	Relative Humidity. 7 a. m.	Relative Humidity. 2 p. m.	Relative Humidity. 9 p. m.	Relative Humidity. Mean.
1	30.18	30.12	30.03	30.090	68.5	53.0	15.5	60.7	85.0	50.0	78	74	85	79
2	==	30.18	30.39	30.320	56.0	45.0	11.0	50.5	66.0	54.0	86	73	66	75
3	30.47	30.46	30.44	30.452	55.5	41.0	14.5	48.3	104.0	42.0	64	46	78	63
4	30.50	30.56	30.57	30.550	56.5	41.5	15.0	49.0	104.0	42.0	64	46	67	59
5	30.58	30.61	30.58	30.587	60.5	40.0	20.5	50.2	111.0	48.0	83	51	73	69
6	30.55	30.56	30.50	30.528	65.0	45.0	20.0	55.0	113.0	40.0	84	55	80	73
7	30.43	30.42	30.36	30.392	73.5	53.0	20.5	63.3	120.0	53.0	83	55	76	75
8	30.27	30.24	30.18	30.219	69.0	59.0	10.0	64.0	85.0		87	88	87	87
9	30.10	30.10	30.07	30.085	68.5	61.0	7.5	64.7	101.0		93	90	91	91
10	30.05	30.08	30.07	30.067	73.0	55.0	18.0	64.0	118.0		93	73	82	83
11	30.07	30.08	30.05	30.061	77.5	61.5	16.0	69.5	127.0		93	61	82	78
12	30.05	30.14	30.18	30.137	65.0	55.0	10.0	60.0	93.0		92	79	66	79
13	30.28	30.31	30.30	30.298	66.0	49.5	16.5	57.8	117.0		67	54	75	65
14	30.30	30.34	30.29	30.307	72.5	51.0	21.5	61.7	118.5		86	53	84	74
15	30.24	30.26	==	30.250	77.5	58.5	19.0	68.0	123.0	55.0	88	55	81	75
16	==	30.25	==	==	70.0	62.0	8.0	66.0	109.0	56.5	91	73	82	82
17	30.20	30.20	30.17	30.185	73.0	59.0	14.0	66.0	118.0	54.5	81	58	91	77
18	30.12	30.13	30.09	30.107	74.0	62.0	12.0	68.0	113.5	59.0	93	78	59	77
19	30.01	29.96	29.91	29.948	71.0	61.5	9.5	66.2	80.0	58.5	91	93	92	92
20	29.95	29.98	30.05	30.008	69.0	59.5	9.5	64.3	114.0	56.5	91	83	49	74
21	30.11	30.14	30.10	30.112	66.5	50.0	16.5	58.2	111.0	39.5	65	42	68	58
22	30.13	30.18	30.12	30.127	75.5	53.0	22.5	64.3	117.0	42.0	86	45	70	67
23	30.09	29.98	29.85	29.942	69 0	59.0	10.0	64.0	77.0	55.0	88	90	87	88
24	29.81	29.79	29.76	29.780	80.0	60.0	20.0	70.0	122.0	55.0	90	59	89	79
25	29.77	29.78	30.01	29.894	80.0	43.0	37.0	61.5	124.0	64.5	91	58	55	68
26	30.21	30.25	30.21	30.219	54.5	38.0	16.5	46.2	103.0	34.5	68	52	75	65
27	30.20	30.21	30.15	30.179	65.0	43.0	22.0	54.0	114.0	36.5	78	55	80	71
28	30.03	30.01	29.95	29.982	70.0	56.0	14.0	63.0	117.0	52.0	93	81	88	87
29	30.11	30.11	30.08	20.095	73.0	56.0	17.0	64.5	122.0	46.0	77	32	44	51
30	30.00	30.00	29.96	29.980	77.0	55.0	22.0	66.0	117.0	49.0	87	74	86	82
31	29.97	29.95	29.90	29.930	81.5	66.0	16.5	73.7	119.5	61.0	89	51	83	74
M	30.164	30.173	30.149	30.161	69.46	53.29	16.17	61.37	108.50	53.81	83.87	64.09	76.48	74.81

MARCH.

RAIN FALL.	CLOUDS.						WINDS.					
	9 a. m.		2 p. m.		9 p. m.		7 a. m.		2 p. m.		9 p. m.	
Inches.	Am'nt.	Kind.	Am'nt.	Kind.	Am'nt.	Kind.	Direction.	Force.	Direction.	Force.	Direction.	Force.
.80	10	St.	10	St.	10	St.	S. W.	1	S. E.	2	S. E.	1
.00	10	St.	10	St.	0		N. E.	5	N.	3	N.	5
.00	0		1	Cir.	4	Cir. St.	N.	2	N.	3	W.	1
.00	3	Cir. St.	0		0		E.	1	N.	2	S. E.	1
.00	0		0		0		E.	1	E.	2	S. E.	2
.00	0		1	Cu.	0		E.	1	S. E.	2	E.	3
.00	5	Cir. St.	5	Cu.	3	Cir.	S. E.	3	S. E.	3	S. E.	2
.25	10	St.	10	St.	9	St.	S. E.	1	W.	1	S. E.	1
1.15	10	St.	10	Nim.	10	St.	o		S. E.	2	S. E.	1
.00	10	St.	9	Cir. St.	0		o		o		S.	1
.55	10	St.	7	Cir. St.	0		S. W.	1	W.	3	S.	1
.00	10	St.	10	St.	2	Cir. St.	S. W.	1	N.	2	o	
.00	0		0		0		N. E.	1	E.	1	S. E.	1
.00	0		1	Cu.	0		N. E.	1	E.	1	E.	2
	4	Cir. St.										
.00	8	Cu. St.	9	Cu. St.	8	Cir. Cu	S. E.	2	S. E.	3	S. E.	2
	1	Cir. Cu										
.00	2	St.	10	Cir. St.	4	St.	W.	1	E.	2	S. E.	1
			4	Cu. St.								
.20	10	St.	5	Cir. St.	6	St.	E.	1	E.	2	S. E.	2
.32	10	St.	10	Cir.	9	St.	S. E.	1	E.	1	S. E.	1
.70	10	St.	10	St.	3	Cir. St.	o		o		W.	1
.00	3	Cir. St.	3	Cir. St.	0		N. W.	3	W.	4	W.	2
.00	10	Cir. St.	8	Cir.	0		o		W.	2	W.	1
.01	9	Cir. St.	10	Cir.	0		o		E.	1	S. E.	1
1.10	10	St.	10	Nim.	10	St.	E.	3	S. E.	3	S. E.	3
.00	10	St.	6	Cir.	0		S. W.	2	S. W.	3	S. E.	3
.00	10	St.	6	Cu.	0		S.	2	W.	5	N.	6
	3	St.										
.00	2	Cu.	0		0		N.	4	N.	4	o	
.45	5	Cir. St.	8	Cu. St.	10	St.	N.	1	E.	1	E.	2
.01	10	St.	9	St.	0		S. E.	1	o		W.	3
.00	0		0		0		o		W.	1	S. E.	2
.00	1	Cir. St.	10	St.	0		S. E.	1	S.	3	S. E.	1
.00	10	St.	10	Cir. St.	3	St.	S. E.	1	S.	3	S. E.	3
5.54	6.64		6.51		2.93			1.08		2.32		1.93

APRIL.

Day.	Barometer. 7 a. m.	2 p. m.	9 p. m.	Mean.	Temperature. Maximum.	Minimum.	Range.	Mean.	Radiation. Solar.	Terrestrial.	Relative Hmidity. 7 a. m.	2 p. m.	9 p. m.	Mean.
1	29.86	29.90	29.90	29.897	75.5	65.0	10.5	70.20	105.5	64.5	91	80	80	86
2	30.03	30.03	30.02	30.025	77.0	60.0	17.0	68.5	125.0	49.0	73	35	76	61
3	30.02	30.02	30.01	30.015	80.5	60.5	20.0	70.5	123.0	52.0	87	71	88	82
4	30.08	30.08	30.05	30.065	86.0	70.0	16.0	78.0	129.0	66.0	88	59	81	76
5	30.06	30.14	30.10	30.101	84.0	73.0	11.0	78.5	128.5	70.0	88	60	84	77
6	30.09	30.10	30.03	30.061	84.5	72.0	12.5	78.2	131.0	68.5	86	60	81	76
7	29.96	29.96	29.90	29.930	83.0	70.0	13.0	76.5	124.5	65.5	91	57	78	75
8	29.81	29.82	29.93	29.872	80.5	50.0	30.5	65.3	115.5	64.5	46	60	87	64
9	30.17	30.18	30.18	30.174	62.0	45.5	16.5	53.7	110.0	42.5	66	46	67	60
10	30.23	20.25	30.19	30.215	71.0	50.0	21.0	60.5	119.0	39.5	71	44	71	62
11	30.19	30.20	30.11	30.152	75.5	55.5	20.0	65.5	120.0	46.0	86	51	70	69
12	30.15	30.19	30.11	30.140	72.0	57.5	14.5	64.8	120.0	47.0	62	35	66	54
13	30.11	30.10	30.08	30.094	73.0	56.0	17.0	64.5	121.5	46.5	75	56	72	68
14	30.01	30.01	29.99	30.000	67.5	61.5	6.0	64.5	82.0	58.0	82	90	89	87
15	29.97	30.02	29.99	29.991	64.0	56.0	8.0	60.0	86.0	54.0	75	66	76	72
16	30.05	30.06	30.02	30.027	71.0	49.0	22.0	60.0	115.0	42.0	70	34	58	54
17	30.05	30.02	29.95	29.993	68.0	50 0	18.0	59.0	113.0	40.0	66	39	64	56
18	29.99	30.00	29.96	29.987	72.5	49.0	23.5	60.7	116.5	40.0	70	37	72	60
19	30.02	30.09	30.04	30.048	76.0	58.0	18.0	67.0	123.0	48.5	83	53	80	72
20	30.08	30.09	30.05	30.067	76.5	58.5	18.0	67.5	111.0	53.0	87	53	77	72
21	30.03	30.02	29.94	30.008	82.0	60.0	22.0	71.0	125.0	54.5	84	37	69	63
22	29.89	29.87	29.80	29.840	81.0	62.5	18.5	71.7	124.5	57.5	88	38	78	68
23	29.82	29 89	29.88	29.869	80.5	64.0	16.5	72.3	126.0	56.0	83	47	69	66
24	30.00	30.04	30.03	30.025	66.	60.0	6.0	63.0	84.5	59.0	79	64	64	69
25	30.12	30.14	30.10	30.115	67.0	55.5	11.5	61.2	113.0	57.5	55	47	66	56
26	30.10	30.12	30.08	30.095	73.0	54.0	19.0	63.5	118.0	44.0	62	47	72	60
27	30.07	30.09	30.00	30.040	77.0	61.0	16.0	69.0	120.5	57.0	85	72	83	80
28	29.92	29.94	==	==	84.0	67.5	16·5	75.8	123.0	65.5	87	60	81	76
29	==	29.91	29.85	==	83.0	72.5	10.5	77.7	110.0	70.0	83	60	83	77
30	29.83	29.87	29.83	29.839	86.0	73.5	12.5	79.8	128.5	71.0	84	56	79	73
M	30.024	30.039	30.005	30.024	75.98	59.92	16.06	67.95	116.40	54.96	77.76	54.00	75.63	69.03

APRIL.

RAIN FALL.	CLOUDS.						WINDS.					
	7. a. m.		2 p. m.		9 p. m.		7 a. m.		2 p. m.		9 p. m.	
Inches.	Am'ut.	Kind.	Am'nt.	Kind.	Am'nt.	Kind.	Direction.	Force.	Direction.	Force.	Direction.	Force.
	4	St.										
.20	6	Cir. St.	10	St.	7	St.	S. E.	2	0		0	
.00	1	Cir. St.	0		0		0		E.	2	S. E.	1
.00	10	St.	9	St.	10	St.	E.	1	E.	1	S. E.	2
			3	Cir.								
.00	0		3	Cu. St.	5	St.	S. E.	2	S. E.	3	S. E.	3
.00	9	St.	4	Cu.	5	St.	S. E.	2	S. E.	4	S. E.	3
			7	Cir. St.								
.00	10	St.	1	Cu.	0		S. E.	1	S. E.	4	S. E.	2
			10	Cu. St.								
.50	1	Cir. St.	8	Cir. St.	0		S. E.	4	S. E.	4	S. E.	3
.00	10	St.	10	St.	10	Nim.	S.	1	S. W.	5	N.W.	4
.00	8	Cir. St.	0		0		N.	5	0		0	
.00	0		5	Cir.	0		W.	1	E.	2	E.	2
		Cir.	1	Cir.								
.00	3	St.	1	Cu.	10	Cir. St.	0		W.	3	0	
.00	0		0		0		N. E.	3	0		0	
	2	Cir. St.										
.00	7	Cir.Cu.	8	Cir. St.	5	Cir.Cu.	E.	2	E.	3	E.	1
.53	10	St.	10	Nim.	10	St.	E.	2	E.	2	E.	1
.15	10	St.	10	St.	10	St.	N.	4	W.	1	W.	1
.00	0		0		0		W.	1	W.	2	W.	1
.00	0		4	Cu.	0		W.	1	W.	3	W.	1
.00	0		0		0		N.W.	1	W.	2	W.	2
.00	1	Cir. St.	10	St.	0		W.	1	W.	2	0	
.00	4	Cir.	10	Cir.	4	Cir. St.	W.	1	S. W.	2	S. E.	1
.00	8	Cir.	0		0		W.	1	W.	1	N.W.	2
.00	2	St.	1	Cir. St.	0		W.	2	N.W.	3	S. W.	2
.00	9	St.	5	Cu.	0		S. W.	1	W.	3	S. E.	1
.00	10	St.	10	St.	10	St.	N.	3	N.W.	2	N.W.	2
.00	0		0		0		N.	3	N.	3	N.	1
.00	0		3	St.	0		N.	2	E.	2	E.	2
.00	10	St.	9	St.	10	St.	E.	3	S. E.	4	S. E.	4
.00	9	St.	10	St.	0		S. E.	5	S. E.	4	S.	1
.00	10	St.	10	St.	10	St.	S.	2	S.	1	S. E.	3
			8	Cir.Cu.								
.00	10	St.	8	Cu. St.	10	St.	S. E.	3	S. E.	4	S. E.	4
1.38	5.40		6.00		3.87			2.14		2.66		2.00

MAY.

Day.	Barometer. 7 a. m.	Barometer. 2 p. m.	Barometer. 9 p. m.	Barometer. Mean.	Temperature. Maximum.	Temperature. Minimum.	Temperature. Range.	Temperature. Mean.	Radiation. Solar.	Radiation. Terrestrial.	Relative Humidity. 7 a. m.	Relative Humidity. 2 p. m.	Relative Humidity. 9 p. m.	Relative Humidity. Mean.
1	29.81	29.87	29.80	29.817	78.0	65.0	13.0	71.5	89.0	70.0	88	88	94	90
2	29.88	29.92	29.90	29.900	74.0	61.5	12.5	67.8	118.0	58.0	66	46	72	61
3	29.95	29.98	29.94	29.955	78.0	57.0	21.0	67.5	125.0	50.5	84	34	65	61
4	30.00	30.01	29.96	29.982	72.0	63.0	9.0	67.5	83.0	58.0	68	70	84	74
5	29.93	29 94	29.86	29.907	74.0	61.0	13.0	67.5	104.5	55.0	88	77	97	87
6	29.80	29.78	29.78	29.785	81.0	63.0	18.0	72.0	122.0	55.0	94	74	80	83
7	29.82	29.86	29.83	29.835	80.0	64.0	16.0	72.0	124.0	60.5	92	53	77	74
8	29.91	29.94	29.90	29.912	85.5	66.0	19.5	75.7	130.0	60.0	88	43	79	67
9	29.90	29.98	29.91	29.924	80.0	68.0	11.5	74.3	79 0	63.0	88	88	87	88
10	29.93	30.00	29.96	29.962	81.0	68.5	13.0	74.5	125.0	65.0	88	63	79	77
11	30.00	30.06	30.00	30.015	81·0	67.0	14.0	74.0	125.0	64.0	69	43	74	62
12	30.02	30.09	30.06	30.057	81.5	65.0	16.5	73.2	131.0	56.5	77	44	72	64
13	30.00	29.98	29.89	29.939	74.0	62.0	12.0	68.0	81.0	65.0	78	91	94	88
14	29.78	29.74	29.68	29.720	80.0	63.0	17.0	71.5	119.5	60.0	96	79	91	89
15	29.66	29.71	29.70	29.697	85.5	72.0	13.5	78.8	129.0	70.0	94	60	78	77
16	29.81	29.89	29.90	29.870	87.5	71.0	16.5	79.2	132.0	66.0	74	46	75	65
17	29.91	29.96	29.90	29.918	88.5	70.5	18.0	79.5	131.0	68.5	92	49	83	75
18	29.90	29.89	29.87	29.884	88.0	74.0	14.0	81.0	129.0	70.0	87	72	82	80
19	29.84	29.90	29.89	29.879	79.0	69.0	10.0	74.0	117.0	66.0	94	88	90	90
20	29.90	29.92	29.91	29.910	83.5	69.0	14.5	76.3	122.0	66.0	94	86	96	92
21	20.90	29.95	29.91	29.917	82.5	69.0	13.5	75.7	124.0	66.5	97	77	94	89
22	29.93	29.98	29.98	29.968	87.0	72.5	14.5	79.8	131.0	70.5	84	59	82	75
23	30.00	30.00	29.98	39.990	86.5	74.0	12.5	80.2	132.0	72.0	90	68	80	79
24	29.93	29.95	29.90	29.920	88.5	73.5	15.0	81.0	130.0	68.0	87	50	77	71
25	29.90	29.91	29.89	29.900	87.5	73.0	14.5	80.2	132.0	66.0	91	75	73	80
26	29.90	29.94	29.91	29.915	83.0	73.0	10.0	78.0	119.5	68.0	87	61	84.7	77
27	29.94	29.94	29.93	29.935	87.5	69.0	18.5	78.2	127.0	72.0	89	82	66	79
28	29.92	29.93	29.95	29.935	82.0	68.5	13.5	75.3	122.0	66.0	93	59	90	80
29	29.94	29.97	29.94	29.944	86.0	70.0	16.0	78.0	131.0	67.0	94	80	89	87
30	29.96	29.98	29.95	29.960	86.0	74.0	12.0	80.0	130.0	69.0	92	65	80	82
31	29.98	30.01	30.00	29.996	84.0	73.5	10.5	78.7	128.0	69.0	91	74	84	83
	29.904	26.934	29.902	29.911	82.33	68.05	14.29	75.19	120.08	64.55	89.90	65.93	81.94	78.25

MAY.

RAIN FALL.	CLOUDS.						WINDS.					
	7 a. m.		2 p. m.		9 p. m.		7 a. m.		2 p. m.		9 p. m.	
Inches.	Am'nt.	kind.	Am'nt.	Kind.	Am'nt.	Kind.	Direction.	Force.	Direction.	Force.	Direction.	Force.
2.15	10	St.	10	St.	10	St.	S. W.	1	o		o	
.00	0		0		0		N.W.	3	W.	1	o	
.00	7	Cir.	10	Cir.	10	Cir.Cu	W.	1	W.	1	o	
.05	6	Cir. St.	10	Nim.	10	Cir.Cu	E.	2	S. E.	1	S. W.	1
8.00	9	St.	10	Nim.	10	Nim.	E.	3	E.	2	N.E.	5
.00	10	St.	10	St.	0		E.	1	S. W.	4	W.	3
	1	Cir. St.										
.00	1	Cu.	2	Cu.	0		N.W.	1	W.	3	W.	1
.00	0		0		4	Cir. St.	S. W.	1	W.	1	S. E.	3
.20	10	St.	10	Nim.	10	St.	o		E.	1	o	
.00	10	St.	1	Cu.	1	Cir.Cu	N. E.	1	o		o	
.00	3	Cir. Cu	0		3	Cir. St.	E.	1	N. E.	1	o	
.00	0		8	Cir.Cu	3	Cir. St.	E.	1	E.	1	E.	1
1.40	10	St.	10	Nim.	10	St.	E.	1	E.	3	E..	1
.05	10	Nim.	10	St.	10	Nim.	o		W.	2	S. E.	4
.00	9	St.	1	Cu.	8	St.	S.	1	W.	3	o	
.00	0		0		0		E.	3	o		S. E.	2
.00	10	St.	4	Cir. St.	0		S. E.	1	S. E.	2	E.	1
	3	Cir. St.										
1.90	1	St.	9	Cu.	10	St.	S. E.	2	S. E.	3	S. E.	4
			4	Cir. St.								
.75	10	St.	3	Cu. St.	3	Cir. St.	S. E.	3	E.	2	S. E.	1
2.60	10	St.	10	Nim.	10	St.	N. E.	1	N.W.	3	E.	4
.01	10	St.	10	St.	0		S. E.	2	S. W.	1	S. E.	1
.00	10	St.	3	Cu.	10	Nim.	S. E.	1	S. W.	1	S. E.	1
			5	Cu.								
.00	8	St.	9	Cir.Cu	0		S. E.	1	W.	1	S. E.	2
.00	4	Cir.Cu	3	Cu.	0		o		S. W.	2	S. W.	1
			6	Cir.								
.00	7	St.	4	Cu.	0		o		o		S. E.	2
			10	Cir. St.								
.01	10	Cir. St.	3	Cu.	0		o		S. E.	2	S. E.	3
2.60	3	Cir.	10	Nim.	10	St.	S.	2	S.	4	o	
.45	10	Nim.	9	St.	3	St.	S.	1	S. E.	3	o	
.85	10	St.	10	Nim.	0	.	o		W.	1	o	
.85	6	Cu.	9	Cu. St.	4	Cir. St.	o		o		o	
.00	0		10	Cu. St.	4	Cir. St	o		E.	1	o	
21.87	6.70		7.19		4.61			1.61		2·00		2.15

JUNE.

Day.	Barometer. 7 a. m.	Barometer. 2 p. m.	Barometer. 9 p. m.	Barometer. Mean.	Temperature. Maximum.	Temperature. Minimum.	Temperature. Range.	Temperature. Mean.	Radiation. Solar.	Radiation. Terrestrial.	Relative Humidity. 7 a. m.	Relative Humidity. 2 p. m.	Relative Humidity. 9 p. m.	Relative Humidity. Mean.
1	30.02	30.02	30.04	30.030	86.0	73.0	13.0	79.5	129.0	67.5	89	79	84	84
2	30.04	30.07	30.01	30.030	86.0	73.0	14.0	79.0	129.0	69.0	86	79	79	81
3	30.00	29.98	29.90	29.946	89.0	73.0	16.0	81.0	135.0	69.0	91	55	79	75
4	29.91	29.94	29.91	29.917	87.0	74.0	13.0	80.5	131.0	69.5	85	58	75	73
5	29.91	29.94	30.94	29.934	86.0	75.0	10.5	80.7	123.0	72.0	84	73	90	82
6	29.95	29.99	29.98	29.976	86.0	72.5	13.5	79.3	130.0	69.0	90	76	89	85
7	30.00	30.04	30.01	30.030	88.0	74.0	14.0	81.0	130.0	70.0	88	67	89	81
8	30.00	29.99	29.95	29.974	88.0	74.5	13.5	81.2	121.0	71.0	89	75	89	84
9	29.95	29.96	29.95	29.950	88.0	75.0	13.0	81.5	129.0	71.0	91	82	90	88
10	29.93	30.00	29.99	29.977	85.5	74.0	11.5	79.7	124.0	70.0	91	80	89	87
11	30.01	30.06	30.04	30.036	88.0	74.0	14.0	81.0	129.0	70.0	86	75	84	82
12	30.05	30.04	30.02	30.031	91.0	75.0	16.0	83.0	132.0	71.0	84	58	92	78
13	30.00	29.99	29.92	29.957	87.0	76.0	11.0	81.5	133.0	72.0	89	69	87	82
14	29.90	29.90	29.88	29.890	91.0	77.0	14.0	84.0	130.3	74.0	83	53	87	74
15	29.93	29.98	29.99	29.974	90.0	77.5	12.5	83.8	132.0	75.0	87	83	91	87
16	30.00	30.02	30.00	30.005	88.0	73.5	14.5	80.7	130.0	67.0	89	73	85	82
17	30.00	30.02	29.99	29.999	86.0	76.5	9.5	81.3	126.0	72.0	89	65	84	79
18	29.97	29.98	29.95	29.962	87.5	73.5	14.0	80.5	118.0	70.0	86	72	89	82
19	30.00	30.10	30.08	30.065	89.5	73.0	16.5	81.2	130.0	69.5	94	64	87	82
20	30.09	30.14	30.09	30.107	90.5	77.5	13.0	84.0	131.0	71.5	87	58	77	74
21	30.08	30.10	30.02	30.054	92.0	72.0	20.0	82.0	133.0	72.5	91	49	80	73
22	30.01	30.01	29.99	30.000	91.0	78.0	13.0	84.5	132.0	73.0	87	56	76	73
23	30.00	30.07	30.03	30.032	91.0	77.0	14.0	84.0	137.5	73.0	84	48	68	67
24	30.10	30.15	30.11	30.113	85.0	77.0	8.0	81.0	109.5	73.5	86	67	82	78
25	30.10	30.12	30.08	30.095	92.0	76.0	16.0	84.0	134.5	70.5	84	51	83	73
26	30.10	30.11	30.09	30.097	90.0	76.0	14.0	83 0	125.0	==	87	52	80	73
27	30.07	30.07	30.00	30.034	91.0	78.0	13.0	84.5	131.5	72.0	79	56	82	72
28	30.05	29.94	29.88	29.937	82.5	77.0	5.5	79.7	129.0	74.5	92	88	89	89
29	29.81	29.80	29.78	29.792	88.0	73.5	14.5	80.7	132.0	69.0	84	63	79	75
30	29.79	29.87	29.87	29.852	90.0	73.5	16.5	87.7	135.5	72.0	82	63	78	75
M	29.992	30.013	29.983	29.993	88.35	74.97	13.38	81.66	129.06	71.03	87.20	66.23	83.76	79.03

JUNE.

RAIN FALL.	CLOUDS.						WINDS.					
	9 a. m.		2 p. m.		9 p. m.		7 a. m.		2 p. m.		9 p. m.	
Inches.	Am'nt.	Kind.	Am'nt.	Kind.	Am'nt.	Kind.	Direction.	Force.	Direction.	Force.	Direction.	Force.
.00	0		8	Cu. St.	0		E.	1	E.	3	E.	1
.00	9	St.	3	Cu.	1	Cir.Cu.	o		E.	1	S.	1
.00	1	Cir. St.	5	Cu.	0		E.	1	W.	1	S. W.	1
			1	Cir.								
.00	2	Cu.	8	Cir. St.	3	Cir.Cu.	S.	1	S. W.	3	S. W.	1
.91	0		10	St.	10	Nim.	S. E.	2	W.	2	N.W.	1
.02	10	St.	10	St.	2	Cir. St.	o		W.	1	o	
	1	Cir. Cu										
.43	3	St.	10	Nim.	10	St.	S. E.	1	W.	1	E.	1
.30	10	St.	10	Nim.	7	Cir. St.	o		N.W.	4	o	
.80	10	St.	10	St.	9	St.	o		E.	1	o	
.75	9	Cir. St.	10	Cu. St.	4	Cir. St.	E.	2	E.	1	E.	1
.08	1	Cir. St.	9	Cu. St.	0		o		W.	1	W.	1
.55	0		4	Cu.	0		W.	1	W.	2	o	
.00	8	Cir.	10	Cu. St.	0		W.	1	N.W.	3	S.	1
.00	9	St.	4	Cu.	1	St.	o		W.	3	W.	1
1.72	6	Cir. St.	10	Nim.	2	St.	W.	1	W.	4	o	
.20	1	Cir.Cu.	9	Cu. St.	8	Cu. St.	W.	2	N. E.	1	o	
.20	4	St.	10	Cu. St.	0		E.	3	E.	2	S. E.	2
	5	Cir.Cu.										
.03	4	St.	10	St.			S. E.	1	S. W.	1	S. E.	2
	3	Cir.										
.02	3	Cir. St.	9	Cu. St.	1	St.	S. E.	2	S. W.	1	S. E.	1
.00	0		4	Cu.	0		o		W.	1	o	
			4	Cir.								
.00	9	Cir. St.	2	Cu.	0		o		W.	1	S. E.	1
.00	3	Cu.	3	Cu.	0		S. E.	1	W.	2	S. E.	1
.00	0		9	Cu. St.	0		S. E.	2	E.	1	S. E.	2
	2	Cir.Cu.										
.00	5	St.	10	St.	9	St.	W.	1	N.	1	o	
.00	4	St.	5	Cu.	0		N. E.	2	N. E.	1	W.	1
.00	4	St.	10	St.	6	St.	N.W.	1	N. E.	3	o	
.47	3	Cir.Cu.	8	Cu. St.	10	St.	o		S. E.	3	N. E.	1
.87	10	St.	10	Nim.	2	St.	E.	1	E.	1	o	
.01	3	Cu. St.	4	Cu.	1	Cir. St.	W.	1	W.	2	W.	1
.00	2	Cir. St.	7	St.	0		N.W.	3	N.W.	3	S.	1
7.36	4.80		7.86		2.86			1.33		1.80		1.15

JULY.

Day.	Barometer. 7 a. m.	2 p. m.	9 p. m.	Mean.	Temperature. Maximum.	Minimum.	Range.	Mean.	Radiation. Solar.	Terrestrial.	Relative Humidity. 7 a. m.	2 p. m.	9 p. m.	Mean.
1	29.95	30.02	30.03	30.006	93.0	77.5	15.5	85.3	133.0	71.0	91	48	79	73
2	30.01	30.17	30.18	30.134	93.0	79.0	14.0	86.0	134.5	71.0	84	53	74	70
3	30.19	30.18	30.15	30.165	92.5	79.0	13.5	85.7	136.0	74.0	87	58	80	75
4	30.13	30.13	30.10	30.115	95 5	77.0	18.5	86.3	135.5	73.0	84	41	72	66
5	30.10	30.10	30.07	30.085	93.5	79.0	14.5	86.2	137.5	75.0	72	50	74	65
6	30.04	30.01	29.99	30.010	97.0	78.0	19.0	87.5	136.0	==	80	48	74	67
7	29.99	29.99	29.95	29.971	97.5	82.0	15.5	89.7	138.0	75.0	78	42	67	62
8	29.98	30.00	29.95	29.970	98.0	80.0	18.0	89.0	136.0	77.5	76	41	52	56
9	29.99	30.02	30.00	30.004	94.0	79.0	15.0	86.5	134.5	==	71	43	67	60
10	30.00	30.01	29.98	29.992	95.0	79.0	16.0	87.0	133.0	74.0	67	45	74	62
11	30.00	30.02	30.00	30.005	90.0	77.5	12.5	83.8	129.5	76.0	82	61	87	77
12	30.00	29.96	29.92	29.950	88.0	75.0	13.0	81.5	126.0	72.0	82	61	80	74
13	29.94	30.00	29.99	29.979	92.5	78.0	14.5	85.2	136.5	75.0	79	61	78	73
14	30.01	30.02	30.00	30.006	90.0	77.0	13.0	83.5	133.0	73.0	87	59	69	72
15	30.03	30.05	30.01	30.025	90.5	77.0	13.5	83.7	138.0	73.5	87	56	82	75
16	30.03	30.04	30.03	30.032	91.0	77.5	13.5	84.3	135.0	72.5	84	47	77	69
17	30.01	30.06	30.05	30.040	91.0	78.0	13.0	84.5	134.0	74.0	84	61	78	74
18	30.07	30.05	30.04	30.051	92.0	78.5	13.5	85.2	137.0	72.0	80	57	86	74
19	30.05	30.08	30.02	30.044	90.5	75.5	15.0	83.0	134.0	70.5	76	59	84	73
20	30.02	30.05	30.01	30.022	85.5	74.5	11.0	80.0	119.0	71.0	79	79	79	79
21	30.00	30.00	30.00	30.000	87.0	75.5	11.5	81.3	123.0	==	90	84	91	88
22	30.02	30.08	30.09	30.070	80.0	73.0	7.0	76.5	86.0	70.5	97	92	90	93
23	30.12	30.18	30.19	30.170	90.0	73.5	16.5	81.7	132.0	70.5	91	54	84	76
24	30.19	30.20	30.14	30.167	82.0	76.0	6.0	79.0	102.0	72.0	89	82	91	87
25	30.08	30.06	30.01	30.040	84.0	70.5	13.5	77.2	134.5	67.0	87	70	82	79
26	30.01	30.04	30.02	30.022	90.0	72.0	18.0	81.0	132.0	67.5	88	50	92	76
27	30.09	30.09	30.07	30.070	89.0	74.5	14.5	81.7	134.0	66.0	89	62	78	77
28	30.07	30.10	30.08	30.079	88.0	77.0	11.0	82.5	132.5	==	77	64	84	75
29	30.06	30.06	30.05	30.055	88.0	76.0	12.0	82.0	129.5	72.0	84	60	84	76
30	30.05	30.05	30.06	30.054	86.0	76.0	10.0	81.0	127.0	71.0	89	89	94	91
31	30.06	30.09	30.09	30.081	91.0	74.5	16.5	82.8	134.0	70.0	94	51	80	75
M	30.039	30.061	30.041	30.046	90.48	76.66	13.82	83.57	130.44	72.09	83.39	58.96	79.45	73.94

JULY.

RAIN FALL.	CLOUDS.						WINDS.					
	7 a. m.		2 p. m.		9. p. m.		7 a. m.		2 p m.		9 p. m.	
Inches.	Amn't.	Kind.	Amn't.	Kind.	Amn't.	Kind.	Direction.	Force.	Direction.	Force.	Direction.	Force.
.00	0		4	Cu.	0		S. E.	3	S. E.	3	S. E.	2
.00	0		9	Cu.	0		S. E.	3	S. E.	3	S. E.	1
.00	0		7	Cu.	0		S. E.	1	E.	1	E.	1
.00	0		0		1	Cir. St.	N.W.	2	E.	2	S.W.	1
.00	0		8	Cu. St.	10	St.			S. E.	1	N.W.	1
.20	3	Cir. St.	0		10	Cu. St.	N.	1	W.	1	N.W.	1
.00	0		0		0		N. E.	1	W.	1	W.	1
.00	0		1	Cu. St.	10	St.	N.W.	1	N.W.	2	N.	4
.00	0		9	Cu. St.	0		N.	2	N.W.	2	W.	2
					1	Cir.						
.00	0		0		1	Cu. St.	N. E.	1	N.W.	2	W.	1
.90	10	Nim.	9	Cir. St.	10	Nim.	N.	2	W.	2	N.	2
			5	Cir. St.								
.00	10	St.	3	Cu. St.	0		N.W.	1	W.	2	W.	1
.12	2	Cir. St.	8	Cir. St.	10	St.	S.W.	1	S.	2	E.	1
.00	9	St.	7	Cu.	0		N.	2	N. E.	2	N. E.	1
.01	4	St.	9	St.	0		N. E.	3	E.	4	E.	3
			1	Cu. St.								
.00	1	St.	4	St.	0		E.	2	E.	4	E.	1
.00	0		10	Cu. St.	0		E.	3	E.	2	S.E.	1
.05	3	Cu.	4	Cu. St.	0		o		S.W.	2	W.	1
.04	0		10	St.	0		W.	1	W.	3	W.	1
	3	Cir.Cu.										
.05	4	Cir. St.	10	St.	10	St.	W.	1	W.	1	S.	1
2.60	10	St.	10	Nim.	10	St.			W.	1	E.	1
1.18	10	Nim.	6	Cu.	10	St.	E.	2	E.	3	E.	1
	1	Cir. St.										
.01	3	St.	10	St.	3	Cir. St.	E.	1	S. W.	2	o	
.20	10	St.	10	St.	4	St.	o		E.	1	o	
	2	Cir.Cu.										
.07	3	Cir. St.	8	Cu.	0		W.	1	W.	1	o	
			8	Cir.								
.10	0		3	Cu.	0		N.	1	S. W.	2	E.	1
	1	Cir.	2	Cu. St.								
.00	1	Cir.St.	3	St.	0		W.	1	E.	2	S. E.	1
	4	Cir. St.										
.01	5	St.	9	Cu. St.	8	St.	N.W.	1	E.	1	W.	1
.21	8	St.	10	Nim.	9	St.	o		N. E.	2	S. E.	1
1.65	0		10	Nim.	4	St.	S. W.	1	o		o	
.03	2	St.	6	Cu.	0		o		S. E.	3	S. E.	1
7.43	3.51		6.87		3.58			1.56		2.06		1.30

AUGUST.

Day.	Barometer. 7 a. m.	Barometer. 2 p. m.	Barometer. 9 p. m.	Barometer. Mean.	Temperature. Maximum.	Temperature. Minimum.	Temperature. Range.	Temperature. Mean.	Radiation. Solar.	Radiation. Terrestrial.	Relative Humidity. 7 a. m.	Relative Humidity. 2 p. m.	Relative Humidity. 9 p. m.	Relative Humidity. Mean.
1	30.09	30.10	30.10	30.099	90.0	77.5	12.5	83.7	132.0	73.0	89	84	87	83
2	30.10	30.09	30.08	30.085	91.0	76.5	14.5	83.8	137.5	70.5	89	43	84	72
3	30.03	30.01	30.00	30.010	92.0	76.5	15.5	84.2	137.5	73.5	89	61	82	77
4	30.00	30.00	30.00	30.000	92.5	77.0	15.5	84.8	137.0	73.5	84	47	89	73
5	30.00	30.10	30.08	30.067	86.0	77.0	9.0	81.5	112.0	73.0	90	75	89	85
6	30.05	30.07	30.03	30.045	88.0	74.0	14.0	81.0	135.0	70.0	91	57	79	78
7	30.03	30.05	30.01	30.024	84.8	75.5	9.0	80.0	129.0	70.5	86	69	84	79
8	30.01	30.00	30.00	30.002	89.0	76.0	13.0	82.5	131.0	71.0	89	78	89	85
9	30.01	30.03	30.02	30.021	83.0	77.0	6.0	80.0	121.0	74.0	89	89	90	89
10	30.05	30.06	30.04	30.046	90.0	75.0	15.0	82.5	134.0	72.0	92	75	89	85
11	30.08	30.05	30.01	30.037	88.0	76.5	11.5	82.2	135.0	72.0	92	57	90	80
12	30.03	30.04	30.01	30.022	86.5	75.0	11.5	80.8	136.5	71.5	92	63	83	79
13	30.05	30.08	30.04	30.052	91.0	75.0	16.0	83.0	131.0	72.0	89	52	80	74
14	30.04	30.00	29.99	30.004	88.0	77.0	11.0	82.5	127.0	76.0	88	86	89	87
15	29.97	29.94	29.90	29.972	90.0	75.5	14.5	82.7	138.0	74.0	88	52	80	73
16	29.91	29.92	29.93	29.922	90.0	76.0	14.0	83.0	134.0	72.0	89	46	73	69
17	29.98	29.97	29.99	29.980	91.0	77.0	14.0	84.0	139.0	70.5	84	52	75	70
18	30.02	30.02	30.00	30.010	87.0	76.0	11.0	81.5	130.0	73.0	84	71	82	79
19	30.00	30.02	29.97	29.989	91.0	75.0	16.0	83.0	133.0	71.5	89	51	75	72
20	29.95	29.97	29.94	29.949	88.0	78.0	10.0	83.0	128.0	72.5	81	52	84	72
21	29.96	29.99	29.93	29.954	88.0	71.0	17.0	79.5	129.5	68.0	94	67	87	83
22	29.96	30.03	30.01	30.001	87.5	74.0	13.5	80.8	136.0	68.0	90	80	91	87
23	30.08	30.12	30.11	30.105	87.0	74.5	12.5	80.7	137.0	71.0	94	78	87	86
24	30.13	30.12	30.10	30.112	90.5	76.0	14.5	83.3	136.0	71.0	89	49	76	71
25	30.08	30.06	30.05	30.062	89.0	77.0	12.0	83.0	128.0	74.5	85	65	94	81
26	30.03	30.04	30.01	30.021	88.0	74.0	14.0	81.0	136.0	70.0	89	62	82	78
27	30.03	30.04	30.03	30.031	91.0	74.0	17.0	82.5	136.0	69.5	94	55	75	75
28	==	==	==	==	==	==	==	==	135.0	70.5	87	55	==	==
29	==	==	==	==	==	==	==	==	==	==	==	==	==	==
30	==	==	==	==	90.0	76.0	14.0	83.0	133.5	72.5	89	59	85	78
31	==	==	==	==	88.5	77.0	11.5	82.7	132.5	72.0	86	==	80	==
M	30.024	30.030	30.013	30.021	88.83	75.74	13.09	82.28	132.58	71.77	88.90	63.10	83.80	78.50

AUGUST.

RAIN FALL.	CLOUDS.						WINDS.					
	7 a. m.		2 p. m.		9. p. m.		7 a. m.		2 p m.		9 p. m.	
Inches.	Amn't.	Kind.	Amn't.	Kind.	Amn't.	Kind.	Direction.	Force.	Direction.	Force.	Direction.	Force,
1.50	0		10	St.	0		o		E.	1	o	
.00	0		4	Cir. St.	4	Cir. St.	W.	1	W.	2	W.	1
.00	0		9	Cu. St.	7	St.	N.W.	2	N.W.	1	W.	1
.01	0		7	Cu. St.	10	Nim.	N.	1	E.	1	o	
	2	Cir.Cu										
.00	4	St.	10	St.	9	Cir. St.	E.	1	N.W.	1	o	
.00	0		9	St.	4	Cir. St.	N. E.	2	E.	2	o	
	2	Cir. St.										
.05	3	St.	9	St.	0		E.	1	S. E.	1	o	
	8	Cir. St.										
.22	1	St.	10	St.	10	St.	E.	3	E.	1	S.E.	2
3.30	9	St.	10	Nim.	8	St.	E.	2	E.	2	E.	2
	10	Cir.										
.00	3	St.	7	Cu.	0		N. E.	1	S. E.	2	o	
.15	10	St.	10	St.	7	St.	o		S. W.	2	o	
.01	8	St.	7	Cu.	0		S. E.	2	W.	2	W.	1
	1	Cir.										
.00	2	Cir. St.	1	Cu.	1	St.	S.W.	1	W.	3	W.	2
.10	10	St.	10	Nim.	10	St.	W.	2	S.W.	1	o	
.00	3	St.	3	Cu.	0		E.	2	E.	1	S. E.	2
	1	Cir.	8	Cir. St.								
.00	3	St.	3	Cu. St.	1	St.	W.	1	N. E.	1	o	
.00	0		7	St.	0		o		S. W.	1	S. W.	1
.00	4	Cir. St.	7	St.	0		o		W.	2	o	
.00	0		6	Cu. St.	0		o		N.	3	o	
3.50	0		1	Cu.	10	St.	N.W.	1	S. E.	1	W.	1
.04	10	Nim.	10	St.	6	St.	E.	2	E.	3	E.	1
1.00	0		10	Nim.	8	St.	E.	3	E.	3	E.	1
	4	Cir. St.										
.45	3	St.	8	Cu. St.	0		E.	1	E.	2	S. E.	2
			2	Cir.								
.00	0		3	Cu.	0		o		E.	2	W.	1
.21	10	St.	10	St.	0		o		W.	1	N.	1
.00	0		9	Cu. St.	0		o		W.	1	o	
.00	4	Cir.Cu	3	Cu. St.	10	St.	W.	1	E.	2	N.	3
.00	1	St-	1	Cu. St.	=		o		N.	3	==	
.00	0		=		=		==		==		==	
.00	0		6	Cu. St·	0		E,	1	E.	3	o	
.01	0		=		10	St.	o		==		E.	1
10.46	3.86		7.40		3.96			1.50		1.75		1,44

SEPTEMBER.

Day.	Barometer.				Temperature.				Radiation.		Relative Humidity.			
	7 a. m.	2 p. m.	9 p. m.	Mean.	Maximum.	Minimum.	Range.	Mean.	Solar.	Terrestrial.	7 a. m.	2 p. m.	9 p. m.	Mean.
1	30.17	30.10	30.08	30.108	87.0	74.5	12.5	80.7	132.5	==	89	57	80	75
2	30.14	30.09	30.09	30.101	88.5	76.0	12.5	82.2	130.5	71.5	84	55	85	75
3	30.13	30.10	30.09	30.101	90.0	76.0	14.0	83.0	134.0	70.5	89	68	80	79
4	30.15	30.08	30.10	30.107	91.0	76.0	15.0	83.5	135.0	72.0	87	56	85	76
5	30.19	30.14	30.12	30.141	89.5	76.0	13.5	82.7	134.0	72.0	89	58	80	76
6	30.13	30.08	30.09	30.098	90.0	76.5	13.5	83.2	134.0	72.0	82	59	80	73
7	30.09	30.08	30.09	30.087	80.0	74.5	5.5	77.2	101.0	72.0	97	89	89	91
8	30.09	30.07	30.08	30.077	82.0	72.0	10.0	77.0	117.0	70.0	94	72	82	83
9	30.04	30.04	30.01	30.025	84.5	73.0	11.5	78.8	135.0	70.5	89	68	84	80
10	30.07	30.04	30.04	30.048	84.5	70.5	14.0	77.5	136.0	68.5	86	59	81	75
11	30.10	30.07	30.04	30.061	84.0	72.0	12.0	78.0	133.0	67.0	84	57	77	73
12	30.05	30.04	29.97	30.007	87.0	78.0	9.0	82.5	133.5	66.0	86	55	75	72
13	29.98	29.94	30.01	29.982	==	==	==	==	108.5	70.0	86	56	80	74
14	30.04	29.98	30.02	30.017	81.5	70.5	11.0	76.0	129.5	70.0	79	57	60	65
15	30.08	30.03	30.05	30.053	83.0	65.0	18.0	74.0	129.0	62.0	68	84	71	74
16	30.08	30.05	30.05	30.058	82.0	70.5	11.5	76.2	122.0	67.5	79	74	84	79
17	29.98	29.93	29.89	29.926	82.5	73.0	9 5	77.8	129.0	70.5	84	62	84	76
18	29.88	29.82	29.83	29.841	84.0	73.5	10.5	78.7	134.0	71.0	87	80	84	83
19	29.86	29.84	29.85	29.851	88.5	73.5	15.0	81.0	133.5	72.5	84	53	72	69
20	29.96	29.95	29.99	29.969	86.0	71.5	14.5	78.8	135.0	69.0	79	55	80	71
21	30.02	30.01	30.03	30.021	86.5	68.5	18.0	77.5	135.0	64.5	78	52	77	69
22	30.02	29.93	29.97	29.975	88.5	74.0	14.5	81.2	138.0	68.5	86	52	85	74
23	29.96	29.86	29.88	29.898	86.0	75.0	11.0	80·5	132.5	72.0	89	58	84	77
24	29.90	29.88	29.91	29.902	84.5	72.5	12.0	78.5	129.0	69.5	89	66	80	78
25	29.99	29.97	29.98	29.980	86.5	73.5	13.0	80.0	==	67.5	91	61	84	79
26	30.03	30.01	30.01	30.011	83.0	76.5	6.5	79.8	91.0	74.0	89	72	89	83
27	30.05	30.02	30.02	30.032	85.5	76.5	9.0	81.0	111.0	74.0	95	87	95	92
28	30.03	30.01	29.99	30.008	84.0	76.0	8.0	80.0	123.0	==	95	84	89	89
29	30.02	29.97	29.99	29.998	86.0	75.5	10.5	80.7	134.0	72.0	94	61	89	81
30	30.02	29.96	29.01	30.002	83.0	75.5	7.5	79.3	130.0	72.5	89	68	75	77
M	30.042	30.002	30.009	30.016	85.48	73.65	11.83	79.56	127.57	70.36	86.56	64.50	81.33	76.46

SEPTEMBER.

RAIN FALL.	CLOUDS.						WINDS.					
	7 a. m.		2 p. m.		9 p. m.		7 a. m.		2 p. m.		9 p. m.	
Inches.	Am'nt.	Kind.	Am'nt.	Kind.	Am'nt.	Kind.	Direction.	Force.	Direction.	Force.	Direction.	Force.
.01	10	Nim.	8	St.	10	St.	N. E.	2	N.W.	3	o	
.03	10	St.	10	Nim.	0		o		S. E.	4	o	
.10	0		10	Nim.	4	Cir. St.	o		S. E.	2	W.	1
.20	3	Cir. Cu	8	Cu.	0		o		W.	3	S. E.	1
.00	0		7	St.	8	St.	N.W.	1	W.	1	S. W.	1
.12	9	St.	8	St.	10	St.	==		N. E.	2	N. E.	3
1.41	10	St.	10	Nim.	10	St.	==		E.	2	N. E.	3
.00	10	St.	10	St.	10	St.	E.	1	E.	3	E.	1
.00	1	Cir. St.	10	St.	4	St.	E.	3	E.	3	o	
.00	0		8	St.	8	St.	E.	3	N. E.	2	E.	2
.00	1	Cir. St.	3	Cu.	0		E.	2	E.	2	N.W.	1
			3	Cu.								
.00	0		3	Cir. St.	0		E.	1	==		o	
.00	1	Cir.Cu	9	St.	10	St.	o		==		N. E.	2
			1	Cir. St.								
.00	10	St.	10	St.	1	Cir.	N. E.	3	N.W.	3	N. E.	2
.00	0		0		7	Cir. St.	N. E.	3	N.W.	3	o	
.00	10	St.	10	St.	0		N. E.	3	E.	2	E.	1
.00	10	St.	9	St.	7	St.	N. E.	1	E.	3	N. E.	1
.00	10	St.	10	Nim.	10	St.	N. E.	2	N. E.	1	N. E.	1
.00	0		1	Cu.	0		N. E.	3	N.W.	3	o	
.00	0		0		0		N. E.	3	N. E.	3	o	
.00	0		0		0		N. E.	3	N. E.	2	E.	1
			4	Cu. St.								
.10	0		7	Cir. St	0		o		E.	3	o	
			1	Cu.								
.00	10	St.	2	St.	0		N. E.	1	N. E.	1	N. E.	3
.00	10	St.	9	St.	1	St.	N. E.	1	W.	2	E.	1
.00	5	St.	9	St.	10	St.	E.	1	E.	2	o	
.40	10	St.	10	St.	10	St.	E.	1	o		E.	2
.60	10	St.	10	Nim.	10	Nim.	E.	1	S. E.	3	S. E.	1
.30	10	St.	10	Nim.	10	St.	o		E.	1	E.	1
.00	9	St.	8	St.	9	St.	o		E.	2	o	
.00	10	St.	0		4	St.	E.	1	N.W.	3	N. E.	3
3.27	5.63		6.93		5.06			1.81		2.24		2.00

OCTOBER.

Day.	Barometer.				Temperature.				Radiation.		Relative Humidity.			
	7 a. m.	2 p. m.	9 p. m.	Mean.	Maximum.	Minimum.	Range.	Mean.	Solar.	Terrestrial.	7 a. m.	2 p. m.	9 p. m.	Mean.
1	30.02	29.97	30.00	29.997	80.0	68.0	12.0	74.0	132.0	67.0	83	66	82	77
2	30.02	29.99	30.04	30.021	86.0	72.5	13.5	79.2	137.0	69.0	89	60	82	77
3	30.07	30.02	29.99	30.022	84.5	70.0	14.5	77.3	134.5	67.5	86	53	82	74
4	30.01	29.96	29.94	29.986	86.0	72.0	14.0	79.0	133.0	65.5	89	49	75	71
5	29.95	29.89	29.87	29.984	88.0	73.5	14.5	80.7	135.0	65.5	89	62	75	75
6	29.87	29.84	29.95	29.904	77.5	59.0	18.5	68.3	121.0	67.5	82	44	49	58
7	30.04	30.02	30.05	30.042	68.0	52.0	16.0	60.0	118.0	49.5	66	45	66	59
8	30.13	30.10	30.12	30.116	74.0	55.0	19.0	64.5	124.0	48.0	75	62	75	71
9	30.16	30.14	30.12	30.141	79.0	62.0	17.0	70.5	134.0	52.5	85	50	78	71
10	30.20	30.17	30.17	30.175	80.5	65.5	15.0	73.0	130.0	56.0	85	42	78	68
11	30.20	30.12	30.11	30.137	81.5	65.0	16.5	73.2	134.5	56.0	91	70	74	78
12	30.14	30.08	30.10	30.107	78.5	66.0	12.5	72.2	125.5	51.5	83	78	69	77
13	30.17	30.12	30.17	30.158	75.5	59.0	16.5	67.3	123.0	52.0	71	38	75	61
14	30.21	30.22	30.23	30.221	79.0	62.0	17.0	70.5	128.0	51.5	82	50	78	70
15	30.28	30.25	30.25	30.259	82.0	67.5	14.5	74.7	130.0	==	91	87	86	88
16	30.31	30.25	30.20	30.240	79.5	69.0	10.5	74.3	125.0	63.0	88	73	89	83
17	30.16	30.11	30.10	30.122	81.5	68.0	13.5	74.7	133.0	63.0	94	62	86	81
18	30.05	29.96	30.01	30.025	83.0	67.5	15.5	75.3	133.0	61.5	88	51	94	77
19	30.07	30.03	30.09	30.069	67.5	57.0	10.5	62.2	114.5	55.0	81	44	51	59
20	30.18	30.09	30.05	30.093	66.0	52.5	13.5	59.3	113.0	49.5	60	44	71	58
21	30.03	29.97	30.93	29.967	76.5	54.5	22.0	65.5	124.0	48.5	88	46	80	71
22	30.06	30.04	29.06	30.059	78.0	63.5	14.5	70.7	119.0	58.5	82	53	76	70
23	30.06	30.04	30.08	30.065	80.0	65.5	14.5	72.8	119.5	63.0	88	81	93	87
24	30.18	30.18	30.18	30.180	68.0	59.0	9.0	63.5	88.0	58.0	94	80	88	87
25	30.22	30.15	30.15	30.169	78.5	64.5	14.0	71.5	==	==	83	63	86	77
26	30.11	29.99	29.96	30.005	82.5	==	==	==	125.5	64.5	92	57	84	78
27	29.95	29.99	30.03	29.999	70.5	58.5	12.0	64.5	108.0	==	94	72	64	76
28	30.15	30.25	29.29	30.247	58.5	45.0	13.5	51.7	106.5	52.0	70	53	57	60
29	30.39	30.47	30.40	30.415	54.0	38.0	16.0	46.0	105.0	==	69	50	78	65
30	30.35	30.31	30.27	30.299	61.0	42.5	18.5	57.1	109.5	33.5	58	43	74	58
31	30.27	30.32	30.30	30.297	69.0	47.5	21.5	58.2	118.0	39.0	89	43	76	69
M	30.129	30.097	30.105	30.110	75.71	60.71	15.00	68.21	122.70	56.96	82.74	57.13	76.48	72.10

OCTOBER.

RAIN FALL.	CLOUDS.						WINDS.					
	7. a. m.		2 p. m.		9 p. m.		7 a. m.		2 p. m.		9 p. m.	
Inches.	Am'nt.	Kind.	Am'nt.	Kind.	Am'nt.	Kind.	Direction.	Force.	Direction.	Force.	Direction.	Force.
.00	10	St.	4	St.	0		N. E.	3	N.W.	1	E.	1
.00	8	St.	4	Cu.	1	St.	E.	1	E.	3	E.	1
.00	0		0		0		N. E.	2	E.	3	E.	1
.00	0		0		0		E.	1	N.W.	1	o	
.00	0		2	Cu.	0		E.	1	E.	1	N. E.	1
.00	0		0		0		N.	3	N.W.	4	N.W.	5
.00	0		0		0		N.	4	N.	3	E.	1
.00	0		1	Cu.	0		N. E.	1	N. E.	1	E.	1
.00	0		0		0		N.	1	S. E.	1	S. E.	1
.00	0		0		0		E.	1	N.W.	1	N.W.	1
.00	0		7	Cir. St.	0		N.W.	1	W.	2	o	
.00	1	Cir.Cu.	0		0		N.W.	1	N.W.	3	N.W.	2
.00	0		0		0		N.	1	N.W.	2	N.W.	1
.00	0		0		0		N.W.	1	E.	3	N.W.	1
.00	9	St.	8	St.	0		E.	1	E.	3	o	
.02	0		10	St.	0		N. E.	1	E.	2	S. E.	1
.00	7	Cir. St.	1	Cu.	0		N. E.	1	E.	3	E.	2
1.03	10	St.	8	Cu.	10	Nim.	E.	1	E.	3	E.	2
.00	10	St.	0		0		N.W.	4	N.W.	4	N.W.	4
.00	0		0		0		N.W.	2	N.W.	3	S.W.	1
.00	0		0		0		o		W.	3	W.	1
.00	1	Cir. St.	8	St.	0		S. E.	2	S. E.	2	E.	1
.30	10	Cir. St.	10	Nim.	10	St.	E.	3	S.W.	2	N.W.	1
.00	10	St.	10	St.	10	St.	N. E.	2	o		N. E.	1
.00	10	St.	4	St.	0		N. E.	2	==		E.	1
.00	5	Cir. St.	6	Cu.	0				S.	4	S. E.	1
.08	10	St.	10	St.	4	Cir.Cu.	W.	3	N.W.	3	N.W.	2
.00	0		0		0		N.W.	4	N.W.	3	N.W.	3
.00	0		0		0		N.	3	N.W.	3	N.	1
.00	0		0		0		o		N.W.	2	N.	1
.00	0		1	Cir. St.	2	Cir.Cu.	S.	1	N.W.	2	N.	1
1.43	3.25		3.03		1.19			1.85		2.45		1.46

NOVEMBER.

Day.	Barometer.				Temperature.				Radiation.		Relative Humidity.			
	7 a. m.	2 p. m.	9 p. m.	Mean.	Maximum.	Minimum.	Range.	Mean.	Solar.	Terrestrial.	7 a. m.	2 p. m.	9 p. m.	Mean.
1	30.39	30.40	30.39	30.392	65.0	46.0	19.0	55.5	114.5	38.5	69	46	80	65
2	30.34	30.30	30.23	30.272	75.5	51.0	24.5	63.2	123.0	41.5	86	59	88	78
3	30.21	30.19	30.19	30.195	69.5	60.0	9.5	64.8	80.0	==	94	86	91	90
4	30.17	30.15	30.12	30.140	73.5	61.0	12.5	67.2	95.0	59.	91	94	97	94
5	30.11	30.12	30.11	30.112	71.0	66.0	5.0	68.5	105.0	==	97	94	97	96
6	30.08	30.06	30.08	30.073	71.5	63.5	8.0	67.5	120.0	61.5	94	81	91	89
7	30.05	30.02	30.03	30.034	70.5	60.5	10.0	65.5	120.5	57.0	94	82	84	87
8	30.10	30.04	30.11	30.117	73.5	57.0	16.5	65.3	119.5	50.5	93	55	82	77
9	30.16	30.22	30.20	30.194	71.0	57.0	14.0	64.0	121.0	50.0	89	51	81	74
10	30.19	30.14	30.12	30.141	75.5	55.5	20.0	65.5	122.0	46.0	80	43	72	65
11	30.11	30.04	30.01	30.141	76.0	57.0	19.0	66.5	122.0	==	63	41	80	61
12	30.01	30.10	30.11	30.081	68.0	58.5	9.5	63.2	110.0	==	61	41	57	53
13	30.20	30.22	30.20	30.205	58.0	45.5	12.5	51.8	100.5	==	72	51	73	65
14	30.20	30.23	30.21	30.210	65.0	45.5	19.5	55.2	110.0	37.0	84	57	75	72
15	30.22	30.24	30.20	30.215	72.5	52.0	20.5	62.3	110.5	44.0	83	58	82	74
16	30.10	29.91	29.80	29.902	77.0	61.0	16.0	69.0	110.0	55.0	85	==	83	=
17	29.80	29.70	29.67	29.709	69.5	58.0	11.5	63.7	113.0	55.0	49	36	71	52
18	29 61	29.70	29.91	29.782	64.0	45.0	19.0	54.5	98.0	53.0	76	42	50	56
19	30.11	30.20	30.24	30.201	50.0	39.0	11.0	44.5	91.0	36.0	54	44	63	54
20	30.30	30.33	30.30	30.305	58.0	37.5	20.5	47.8	96.5	27.0	81	65	79	75
21	30.28	30.28	30.22	30.245	67.5	48.0	19.5	57.7	104.0	42.0	77	68	77	74
22	30.19	30.05	30.01	30.067	68.0	59.0	9.0	63.5	76.0	57.5	91	75	82	83
23	30.00	29.92	29.90	29.929	76.5	63.0	13.5	69.8	111.0	61.5	88	70	92	83
24	29.88	29.99	30.01	29.974	67.5	61.5	6.0	64.5	100.0	68.5	89	77	81	82
25	30.11	10.12	30.11	30.109	68.0	50.0	18.0	59.0	116.0	47.5	83	43	71	66
26	30.11	30.06	30.00	30.042	64.5	53.0	11.5	58.7	77.0	49.5	75	70	87	77
27	29.90	29.96	29.99	29.962	63.0	57.0	6.0	60.0	81.5	56.0	96	94	94	95
28	30.11	30.20	30.25	30.202	68.0	55.5	12.5	61.8	110.5	51.0	93	76	85	85
29	30.30	30.36	30.36	30.357	69.0	52.0	17.0	60.5	118.0	50.5	80	69	88	79
30	30.37	30.39	30.34	30.357	70.0	55.5	14.5	62.7	118.0	51.0	97	61	87	82
M	30.127	30.123	30.114	30.114	68.55	54.37	14.18	61.46	106.48	49.84	82.03	63.03	80.59	75.34

NOVEMBER.

RAIN FALL.	CLOUDS.						WINDS.					
	9 a. m.		2 p. m.		9 p. m.		7 a. m.		2 p. m.		9 p. m.	
Inches.	Am'nt.	Kind.	Am'nt.	Kind.	Am'nt.	Kind.	Direction.	Force.	Direction.	Force.	Direction.	Force.
.00	0		0		0		E.	1	E.	2	N.W.	1
1.00	10	Cir. St.	8	St.	10	St.	o		E.	2	E.	3
.00	10	St.	10	St.	10	St.	E.	1	N.	3	E.	2
2.48	10	St.	10	Nim.	10	St.	N. E.	1	E.	1	S. E.	1
2.40	10	St.	10	Nim.	10	St.	S. E.	1	E.	1	E.	2
.00	10	St.	3	St.	10	St.	N.	1	W.	2	N.	1
.00	10	St.	3	Cu.	0		N.	1	W.	1	o	
.00	0		0		0		W.	1	W.	1	o	
.00	0		0		0		N.W.	1	N.W.	1	o	
.00	0		0		0		N.	1	N.W.	1	N.W.	1
.00	0		0		0		S. E.	1	W.	1	N.W.	1
·00	0		0		0		N.W.	3	N.W.	3	N.W.	2
.00	0		0		0		N. E.	1	N.W.	1	o	
	1	Cir. Cu										
.00	8	Cir. St.	4	Cir. St.	0		S. W.	1	N.	1	o	
			7	St.								
.00	9	St.	3	St.	0		S. E.	1	W.	1	S. E.	1
	1	Cir.										
.01	9	Cir. St.	7	St.	0		S. E.	2	S. W.	4	S. W.	4
.00	0		0		0		N.W.	4	N.W.	4	N.W.	2
.00	1	Cir.	0		0		W.	3	N.W.	5	W.	6
.00	0		0		0		N.W.	4	N.W.	3	o	
.00	0		9	Cir. St.	0		o		E.	1	o	
.02	10	St.	8	St.	10	St.	E.	2	E.	3	E.	3
.45	10	St.	10	St.	10	St.	E.	2	S. E.	2	S. E.	2
.00	10	St.	7	Cir. St.	3	St.	E.	1	S. E.	2	S.	2
.20	10	St.	10	St.	10	St.	S.	1	N.W.	2	N.W.	3
.00	2	Cir. St.	9	St.	10	St.	N.W.	1	W.	2	o	
1.20	10	St.	10	St.	10	Nim.	E.	1	E.	1	N.W.	1
.01	10	St.	10	St.	10	St.	N.W.	1	o		S. E.	1
.00	8	Cir. St.	5	St.	10	St.	E.	1	W.	1	S. E.	1
.00	10	St.	8	St.	2	St.	N.	1	E.	1	E.	1
.00	4	St.	0		0	====	E.	2	E.	2	o	
7.77	5.77		5.03		4.13			1.50		1.90		2.0

DECEMBER.

Day.	Barometer. 7 a. m.	Barometer. 2 p. m.	Barometer. 9 p. m.	Barometer. Mean.	Temperature. Maximum.	Temperature. Minimum.	Temperature. Range.	Temperature. Mean.	Radiation. Solar.	Radiation. Terrestrial.	Relative Humidity. 7 a. m.	Relative Humidity. 2 p. m.	Relative Humidity. 9 p. m.	Relative Humidity. Mean.
1	30.30	30.22	30.20	30.229	70.0	56.5	13.5	63.2	112.5	50.5	93	78	91	87
2	30.15	30.13	30.10	30.120	74.0	63.5	10.5	68.8	115.0	63.0	88	81	87	85
3	30.07	30.04	30.01	30.031	78.0	69.0	9.0	73.5	101.0	68.0	91	78	91	87
4	30.18	30.18	30.17	30.175	61.0	53.0	8.0	57.0	99.5	51.0	64	56	68	63
5	30.15	30.15	30.18	30.161	59.5	55 5	4.0	57.5	67.0	54.0	90	89	93	91
6	30.16	30.14	30.14	30.146	68.5	53.5	15.0	61.0	80.0	53.0	97	91	97	95
7	30.17	30.18	30.19	30.184	75.5	64.0	11.5	69.7	117.0	64.0	94	73	88	85
8	30.23	30.22	30.22	30.222	76.0	63.0	13.0	69.5	118.0	61.0	93	65	88	82
9	30.24	30.29	30.29	30.278	70.5	64.0	6.5	67.2	107.0	62.0	94	81	88	88
10	30.25	30.24	30.22	30.232	76.0	64.0	12.0	70.0	121.5	61.5	91	63	91	82
11	30.22	30.19	30.14	30.171	76.0	64.0	12.0	70.0	110.0	63.0	97	66	87	83
12	30.09	30.04	29.98	30.022	75.5	63.5	12.0	69.5	109.5	61.5	91	82	91	88
13	30.04	30.14	30.23	30.158	57.5	47.0	10,5	52.3	101.5	52.0	75	52	55	60
14	30.29	30.34	30.31	30.313	53.0	39.5	13.5	46.3	96.5	37.0	73	58	67	66
15	30.33	30.27	30.25	30.275	60.0	45.0	15.0	52.5	103.0	42.5	78	66	80	75
16	30.22	30.24	30.21	30.221	64.5	50·0	14.5	57.2	110.5	42.5	89	67	76	77
17	30.21	30.21	30.19	30.202	69.5	52.5	17.0	61.0	114.5	46.0	90	59	88	79
18	30.20	30.18	30.18	30.182	71.0	52.0	19.0	61.5	116.0	48.5	93	57	82	77
19	30.14	30.19	30.20	30.184	61.0	54.0	7.0	57.5	111.0	51.0	62	50	69	60
20	30.27	30.28	30.29	30.284	58.0	46.0	12.0	52.0	102.5	39.5	78	54	68	67
21	30.24	30.29	30.27	30.270	62.0	44.5	17.5	53.3	88.0	39.5	76	69	93	79
22	30.01	30.00	30.08	30.042	68.0	55.0	13.0	61.5	114.0	50.0	93	77	86	85
23	30.12	30.19	30.20	30.175	52.5	47.0	5.5	49.7	61.0	46.5	92	74	74	80
24	30.20	30.19	30.16	30.177	50.0	46.5	3.5	48.3	68.5	44.5	79	76	79	78
25	30.15	30.14	30.09	30.119	45.0	41.0	4.0	43.0	60.0	41.0	74	72	74	73
26	29.90	29.86	29.79	29.835	59.0	35.5	23.5	47.2	100.0	30.0	86	61	86	78
27	29.95	30.10	30.22	30.122	48.0	38.0	10.0	43.0	94.0	33.5	64	51	69	61
28	30.38	30.40	30.39	30.390	46.0	32.0	14.0	39.0	95.5	26.6	68	66	70	68
29	30.36	30.35	30.31	30.333	61.0	35.0	26.0	48.0	105.0	27.5	88	62	74	75
30	30.34	30.48	30.48	30.446	50.5	45.0	5.5	47.8	78.5	43.5	82	48	53	61
31	30.43	30.41	30.35	30.384	56.0	37.0	19.0	46.5	93.0	34.0	76	69	75	73
M	30.193	30.195	30.195	30.194	63.00	50.84	12.16	56.92	99.06	48.06	83.84	67.45	79.93	77.07

DECEMBER.

RAIN FALL.	CLOUDS.						WINDS.					
	7. a. m.		2 p. m.		9 p. m.		7 a. m.		2 p. m.		9 p. m.	
Inches.	Am'nt.	Kind.	Am'nt.	Kind.	Am'nt.	Kind.	Direction.	Force.	Direction.	Force.	Direction.	Force.
			1	Cir.Cu.								
.01	10	Cir. St.	6	St.	10	St.	E.	3	E.	2	E.	3
.40	4	St.	7	St.	10	St.	S.	1	S. E.	4	S. E.	2
.20	10	St.	10	St.	10	St.	S.	3	S.	4	S.	3
.01	10	St.	10	St.	10	St.	N. E.	2	N. E.	1	N. E.	2
.00	10	St.	10	St.	10	St.	N.W.	1	N.	2	N.	1
.00	10	St.	10	St.	10	St.	==		E.	2	E.	1
.00	10	St.	9	Cu.	10	St.	E.	1	E.	2	E.	2
			6	St.								
.00	2	St.	1	Cu.	0		S. E.	1	S. E.	1	E.	3
.00	10	St.	8	St.	0		E.	3	E.	1	E.	3
.00	10	St.	4	Cu.	0		E.	1	E.	2	E.	1
.00	0		9	Cu. St.	0		E.	1	S. E.	2	E.	1
.11	0		10	St.	9	St.	S. E.	1	E.	1	o	
.00	0		0		0		N.W.	3	N.W.	3	N.W.	4
.00	1	Cir. St.	2	Cir. St.	9	St.	N.	2	N.	1	o	
.00	10	St.	0		0		N. E.	1	N.W.	1	E.	1
.00	1	St.	9	St.	10	St.	N.	1	E.	1	E.	1
.00	10	St.	0		0		N.W.	1	N.W.	1	S. E.	2
	3	Cir.										
.00	3	Cir. St.	7	Cir. St.	0		S.W.	1	N.W.	1	o	
.00	10	St.	7	Cir. St.	0		N.	2	N.W.	2	o	
.00	0	====	5	Cir. St.	0		N. E.	1	N.	2	N.	1
.65	10	St.	10	St.	10	Nim.	E.	2	E.	4	E.	2
.00	10	St.	4	St.	10	St.	S. E.	1	N.W.	1	W.	2
.00	10	St.	10	St.	10	St.	N. E.	1	N. E.	1	E.	2
.00	9	St.	10	St.	10	St.	N.	2	N.	2	N.	2
.00	10	St.	10	St.	2	St.	N.W.	3	N.W.	2	N.W.	1
.00	0		1	Cir. St.	5	St.	S.	1	W.	3	o	
.00	0		0		0		W.	3	N.W.	3	W.	3
.00	0		0		2	Cir. St. St.	E.	1	N. E.	2	S. E.	1
.00	1	Cir. St.	1	Cir.	10	St.	E.	1	S. W.	1	S. E.	2
.00	10	St.	9	St.	10	St.	N.	3	N.	1	E.	2
.00	10	St.	10	St.	10	St.	N. E.	2	E.	2	S. E.	3
1.38	6.58		6.32		5.71			1.67		1.90		1.96

TABLE A.—Showing Mean and Extreme Temperature and Mean Humidity for the year 1873.

MONTH.	TEMPERATURE.										HUMIDITY.			
	Maximum.			Minimum.			Daily Range.			Monthly Means.	Mean, 7 A. M.	Mean, 2 P. M.	Mean, 9 P. M.	Monthly Means.
	Highest.	Lowest.	Mean.	Highest.	Lowest.	Mean.	Greatest.	Least.	Mean.					
Jan'y	71.0	58.0	56.26	61.0	25.0	43.50	22.5	5.0	12.76	49.88	82.76	70.52	77.19	76.86
Feb'y	81.0	58.0	67.91	68.0	43.0	52.32	24.5	7.5	15.59	60.12	79.22	65.55	75.62	73.49
March	81.5	54.5	69.46	66.0	38.0	53.29	37.0	7.5	16.17	61.37	83.87	64.09	76.48	74.81
April	86.0	62.0	75.98	73.5	45.5	59.92	30.5	6.0	16.06	67.95	77.76	54.00	75.63	69.03
May	88.5	72.0	82.33	74.0	57.0	68.05	21.0	9.0	14.29	75.19	86.90	65.93	81.94	78.25
June	92.0	82.5	88.35	78.0	72.0	74.97	20.0	5.5	13.38	81.66	87.20	66.23	83.76	79.03
July	98.0	80.0	90.48	82.0	70.5	76.66	19.0	6.0	13.82	83.57	83.39	58.96	79.45	73.94
Aug't	92.5	83.0	88.83	78.0	71.0	75.74	17.0	6.0	13.09	82.28	88.70	63.10	83.80	78.50
Sept'r	91.0	80.0	85.48	78.0	65.0	73.65	18.0	5.5	11.83	79.56	86.56	64.50	81.33	77.46
Oct'r	88.0	54.0	75.71	73.5	38.0	60.71	22.0	9.0	15.00	68.21	82.74	57.13	76.48	72.10
Nov'r	77.0	50.0	68.55	66.0	37.5	54.37	24.5	5.0	14.18	61.46	82.03	63.03	80.59	75.34
Dec'r	78.0	45.0	63.00	69.0	32.0	50.84	26.0	3.5	12.16	56.92	83.84	67.45	79.93	77.07
Year			76.028			62.001			14.029	69.014	83.75	63.38	79.35	75.40

TABLE B.—Showing Means of Atmospheric Pressure and Solar Radiation.

MONTH.	BAROMETER.						BLACK BULB THERMOMETER.		
	7 a. m.	2 p. m.	9 p. m.	Mean.	Highest.	Lowest.	Highest.	Lowest.	Mean.
January..	30.115	30.126	30.110	30.115	30.540	29.790	118.0	62.0	96.87
February.	30.082	30.097	30.065	30.084	30.450	29.700	128.0	79.0	112.00
March....	30.164	30.173	30.149	30.161	30.610	29.770	127.0	66.0	108.50
April.....	30.024	30.039	30.005	30.024	30.250	29.800	129.0	82.0	116.40
May.....	29.904	29.934	29.902	29.910	30.060	29.665	132.0	79.0	120.08
June	29.992	30.013	29.983	20.993	30.145	29.780	137.5	109.5	129.06
July.....	30.039	30.061	30.041	30.046	30.200	28.920	138.0	86.0	13.040
August...	30.024	30.030	30.013	30.021	30.130	29.900	139.0	112.0	132.58
September	30.042	30.002	30,009	30.016	30.191	29.818	138.0	91.0	127.59
October ..	30.129	30.097	30.105	30.110	30.475	29.835	137.0	88.0	122.70
November	30.127	30.123	30.114	30.119	30.400	29.610	123.0	80.0	106.48
December	30.193	30.195	30.195	30.194	30.485	29.790	121.5	60.0	99.06
Year....	30.070	30.074	30.058	30.065					116.81

TABLE C.—Showing Amount and Velocity of Clouds, Force of the Winds, and Amount of the Rain-Fall Monthly.

MONTH.	CLOUDS.								WINDS.				RAIN-FALL	PREVAILING WINDS.
	7 a. m.		2 p. m.		9 p. m.		Mean.		Force.					
	Amount.	Velocity.	Amount.	Velocity.	Amount.	Velocity.	Amount.	Velocity.	7 a. m.	2 p. m.	9 p. m.	Mean.	Inches.	
Jany....	4.70	2.50	4.93	2.37	4.58	2.63	4.74	2.50	1.87	2.40	2.30	2.19	5.04	S. E.
Feby ...	6.32	2.02	5.32	2.04	3.75	4.00	5.13	2.68	1.96	2.75	2.16	2.29	2.20	S. W.
March ..	6.64	2.33	6.51	2.04	2.93	2.00	5.36	2.12	1.68	2.32	1.93	1.98	5.54	S. E.
April ...	5.47	2.63	6.00	2.00	3.87	2.50	5.11	2.38	2.14	2.66	2.00	2.40	1.38	S. E.
May	6.71	2.15	7.19	1.70	4.61	1.92	6.17	1.92	1.61	2.00	2.15	1.92	21.87	S. E.
June....	4.80	1.40	7.86	1.57	2.86	1.27	4.93	1.41	1.33	1.80	1.15	1.43	7.36	S. E.
July	3.51	1.55	6.87	1.80	3.58	1.83	4.65	1.73	1.56	2.00	1.30	1.62	7.43	S. E.
August .	3.86	1.63	7.40	1.43	3.96	1.25	5.07	2.10	1.50	1.75	1.44	1.56	10.46	S. E.
Septr ...	5.63	1.33	6.93	1.25	5.06	1.63	5.87	1.40	1.81	2.24	2.00	2.02	3.27	N. E.
October.	3.25	2.50	3.03	1.64	1.19	1.50	2.49	1.88	1.85	2.38	1.46	1.89	1.43	N. W.
Novr....	5.77	1.90	5.03	1.85	4.13	1.45	4.97	1.73	1.50	1.90	2.00	1.80	7.77	N. W.
Decr....	6.58	2.25	6.32	2.16	5.71	2.16	6.20	2.33	1.67	1.90	1.69	1.84	1.38	E.
Year..	5.72	2.02	6.12	1.83	3.85	2.05	5.06	2.02	1.71	2.17	1.82	1.91	75.13	

TABLE D.—Showing Monthly Means of Minimum Temperature at 23 feet Elevation, as Compared with 6 inches. Also, Mean Temperature by Max & Min Thermometers, as Compared with Tri-Daily Observations of the Ordinary Thermometers.

MONTHS.	MEAN OF MINIMA.			MEAN TEMPERATURE.		REMARKS.
	At 23 feet Elevation.	At 6 inches Elev'tion.	Mean Temperature at 7 a. m.	Registering Therm's.	Ordinary Therm'tr.	
January	43.50	43.82	49.91	49.880	48.78	
February	52.32	51.34	53.88	60.117	59.69	
March	53.29	53.81	56.29	61.360	61.51	
April	59.92	54.96	62.77	67.950	67.60	
May	68.05	64.55	71.54	75.160	74.57	
June	74.97	71.03	77.31	81.660	80.01	
July	76.66	72.09	79.01	83.570	81.78	
August	75.74	71.77	77.57	82.380	80.22	
September	73.65	70.36	74.68	79.530	78.52	
October	60.71	56.96	62.37	68.210	67.53	
November	54.37	49.84	55.48	61.460	60.15	
December	59.84	48.06	52.21	56.950	56.78	
Year	62.001	59.050	64.42	69.019	68.095	

TABLE E.—Meteorological Memoranda for the Year.

Month.	No. of clear days.	No. of fair days.	No. of cloudy days.	No. of rainy days.	No. days when lightning was observed.	No. of occurrences of frost.	REMARKS.
Jany.	6	13	5	7	1	1	
Feby.	5	16	1	6	1	1	
March	11	6	4	10	5	2	
April.	10	11	6	3	2	0	
May..	7	8	0*	16	13	0	* No cloudy days except when rain fell.
June.	0	12	2	16	14	0	
July.	5	8	1	17	14	0	
Aug..	4	6	7	14	12	0	
Sept.	7	4	9	10	3	0	
Oct..	19	6	2	4	0	1	
Nov..	12	8	2	8	1	1	
Dec..	6	7	12	6	0	4	
Year	92	105	51	117	66	10	

TABLE F.—Showing Comparison of Solar Radiation, Temperature, Humidity, Rain-fall, etc., for the years 1870 *and* 1871, *for the town of Calcutta.*

Months	1870.						1871.					
	Mean of Solar Radiation.	Mean Range Temperature.	Mean Temperature.	Mean Humidity.	Rain near the ground.	Rain 71 feet high.	Mean of Solar Radiation.	Mean Range Temperature.	Mean Temperature.	Mean Humidity.	Rain near the ground.	Rain 70 feet high.
Jan'ry..	116.4	18.1	67.9	65	.77	.65	132.4	17.3	67.6	67	.00	.00
Feb'ry .	123.0	19.8	74.2	60	.00	.00	138.1	17.3	74.3	67	.75	.63
March	127.8	19.4	81.0	58	.03	.00	142.2	16.6	79.4	68	5.41	5.16
April..	128.3	18.4	84.1	64	4.03	3.38	143.0	14.0	82.7	77	5.72	4.64
May....	130.2	16.6	87.7	70	.92	.75	144.4	14.0	83.3	78	11.08	9.33
June ...	125.7	10.8	84.7	80	16.09	14.59	135.8	7.4	82.7	88	25.35	23.56
July . ..	125.2	8.7	83.9	85	10.90	9.93	137.2	7.4	82.5	87	15.93	14.77
Aug....	130.4	7.7	82.4	88	12.92	11.62	140.6	7.3	82.9	88	12.11	10.68
Sept'r ..	140.0	8.4	83.2	84	9.01	8.38	141.9	7.9	82.5	87	9.93	9.25
Oct'r ...	144.9	9.4	82.4	82	3.93	3.74	145.6	10.0	81.6	77	7.03	6.20
Nov'r ..	137.4	11.4	75.9	77	1.66	1.56	140.4	13.9	75.8	71	.00	.00
Dec'r...	130.2	16.5	66.5	70	.00	.00	133.6	15.9	69.0	70	.00	.00
Year ...	129.96	14.0	79.49	73.33	60.26	54.60	139.60	12.42	78.69	77.10	93.31	84.22

MORTUARY REPORT OF THE SECRETARY.

S. C. RUSSELL, M. D.

OFFICE OF BOARD OF HEALTH,

New Orleans, La., Dec. 31, 1873.

Mortuary Report of the City of New Orleans, from January 1st to December 31st, 1873, inclusive.

DISEASES.	Jan'y.	Feb'y.	March.	April.	May.	June.	July.	August.	Sept'r.	October	Nov'r.	Dec'r.	Total.
Abscess		1		1	1					1			4
Abscess of the abdomen				2									2
Abscess of the bladder													
Abscess of the brain							1		1				2
Abscess of the ear		1											1
Abscess of the kidneys													
Abscess of the leg			1						1	2			4
Abscess of the liver		1	1		2							4	8
Abscess of the lungs		1	1		1				2				5
Abscess, psoas							1						1
Abscess of the spine			1										1
Abscess of the thigh						1							1
Abscess of the throat					1								1
Albuminuria		2	3		1	4	1	4	2		1	2	20
Aneurism of the aorta	2		1		2	1			1			2	9
Anæmia		2	1	2	7	2	3	1		5	2	1	26
Angina, pectoris	1			1				1		2	1	1	7
Apoplexy	10	5	9	11	8	10	11	6	9	12	9	14	114
Asthma	2	2	2	2	2	1	2		1	1	1	2	18
Atrophia							1						1
Bronchitis	14	10	18	16	11	4	9	2	5	5	8	6	108
Bright's disease	2	1	4	4	10	1			1	2	3	3	31
Burns or scalds	5	4	4	1	4	4			1	2	3	3	31
Cancer	3				3	2	5		3	2	2	1	21
Cancer of the abdomen					1								1
Cancer of the brain								1					1
Cancer of the breast		2	1				1		2		1	1	8
Cancer of the ear	1								1				2
Cancer of the face				1									1
Cancer of the heart										1			1
Cancer of the lip												1	1
Cancer of the liver	1		1	2		1		1					6
Cancer of the neck			1	1		1							3
Cancer of the rectum		1				1		1	2	1			6
Cancer of the stomach		1	2		1		1	1			3	1	10
Cancer of the thigh		1											1

Mortuary Report—Continued.

DISEASES.	Jan'y.	Feb'y.	March.	April.	May.	June.	July.	August.	Sept'r.	October	Nov'r.	Dec'r.	Total.
Cancer of the throat													
Cancer of the womb	2	3	3	2	4	4	3	2		5	1	2	31
Calculus							1						1
Carbuncle					2				1				3
Catalepsy						1							1
Catarrh	4	2	1	3	4		4	3		1		1	23
Cholera sporadica		3	4	28	97	9					1		142
Cholera infantum			2	17	50	15	16	3	3	6	4	2	118
Cholera Morbus		1	8	36	39	9	3	1	2				99
Chorea		1						1					2
Cirrhosis of the liver	9	2		1	2	2	3	5	2	2	4	2	34
Colic	1				1								2
Colic, bilious				1									1
Colic, pictonum				1									1
Compression of the brain		2		1			1		1				5
Concussion of the brain	1	1	1				1						4
Congestion	1	3							1		1		6
Congestion ef the bowels	1			3	1	1							6
Congestion of the brain	17	7	15	10	21	19	29	14	15	23	16	15	201
Congestion of the liver											2	1	3
Congestion of the lungs	12	8	1	3	4	2	1	3	2	5	7	4	52
Congestion of the stomach			4						2				6
Constipation of the bowels				1									1
Consumption	90	58	66	68	73	58	88	64	67	89	57	72	850
Convulsions, adult	1	2		1		1	1	1		5	1		13
Convulsions, infantile	19	16	15	14	28	23	40	28	23	25	15	10	256
Convulsions, puerperal	3		1		2	3	4						13
Coxalgia										1			1
Croup	6	1	3	1	6	2	1	2	2	8	7	10	49
Cyanosis	2		4	7	5	3	11	5	5	9	5	2	58
Debility, adult	10	9	8	8	15	14	13	7	4	11	8	12	119
Debility, infantile	7	5	9	7	16	5	8	14	9	19	4	6	109
Delirium tremens	2	4		2		2	2	1	1	1	1	1	17
Diarrhœa	3	4	5	4	12	9	16	5	6	5	13	7	89
Diarrhœa, acute		1	1		3	1	3		1	2	1		13
Diarrhœa, chronic	7	6	5	9	19	5	14	12	6	6	13	5	107
Disease of the bowels	1				1				1				3
Disease of the brain						1				1		1	3
Disease of the hip joint												1	1
Disease of the kidneys						1							1
Disease of the liver		1	1		1	2			1	1		1	8
Disease of the lungs						1							1
Disease of the spine						1							1
Diabetes		1				1		1	1	1		1	6
Diptheria	7	1		2	2	1	3	4	6	7	8	5	46
Dropsy	6	9	6	1	9	8	10	2	3	4	7	8	73
Dropsy of the abdomen	2			2	1			2		2	1		10
Dropsy of the brain		2	1	1	4	3	1	4	2	1	1	1	21
Dropsy of the chest		2	1		2							1	6
Dropsy of the heart		1	1		2		1						5
Dropsy, ovarian										1			1
Drowned	2	3	5	5	9	9	12	6	9	9	2	6	77
Dysentery	7	6	1	4	13	5	10	4	3	9	10	8	80
Dysentery acute			1	3	1		3			2		1	11

Mortuary Report—Continued.

DISEASES.	Jan'y.	Feb'y.	March.	April.	May.	June.	July.	Aug.	Sept'r	Oct'r.	Nov'r.	Dec'r.	Total.
Dysentery, chronic	3	6	7	7	4	3	6	5	9	4	4	8	62
Dyspepsia				2									2
Elephantiasis					1								1
Emphysema	2			1								1	4
Emphysema of lungs			1			1	2						4
Empyemia		5			2	2	1	1	2	2	2	2	19
Entero colitis		3	4	1	8	6	11	3	6	7	4	4	57
Erysipelas	4	2	6	1	2		2	1			1	1	20
Epilepsy	1	1	6		2		3	1	1	1	2	3	21
Exposure	2												2
Fatty degeneration		1											1
Fever		1	2	1							1		5
Fever, bilious			2	1	3		2	7	4	5	4	1	28
Fever, congestive	14	8	12	12	17	18	42	32	40	35	13	3	246
Fever, dengue									3	3			6
Fever, gastric						1		1			1		3
Fever, intermittent		1			2	1	2	1	6	2	1		16
Fever, malarial	2	5	3	2	5	4	13	11	24	27	6	7	109
Fever, nervous					1					2	2		5
Fever, puerperal		1	1	1			4	2	2	2	3	1	17
Fever, remittent	1		3	2	3	2	3	4	14	7	1		40
Fever, scarlet				1			1	1					3
Fever, scarlet malignant										1	1		2
Fever, typhoid	9	9	3	3	4	2	4	7	6	3	5	2	57
Fever, typhus	1				1		1	1				1	5
Fever, yellow							3	19	108	79	17		226
Fracture of the leg					1								1
Fracture of the neck			1										1
Fracture of the skull			3		1	1		1	2		2		9
Fracture of the spine				1	1		1					1	4
Gastro enteritis	3	3	5	3	4	9	13	2	3	6	4	6	61
Gangrene			2	1	1							1	5
Gangrene of the leg			1						1				2
Gangrene of the mouth							1						1
Gangrene senile						2				2			4
Gout												1	1
Hæmaturia												1	1
Hemorrhage	3	5		2	1	1	1	1	1	1		1	17
Hemorrhage from the lungs	6	2	2	2	2	1	1	1		3	1	5	26
Hemorrhage from the navel	1		1			1	2	1					6
Hemorrhage from stomach	2												2
Hemorrhage from the womb											1		1
Heart, disease of	20	10	18	17	12	8	12	9	11	8	15	16	156
Heart disease, valvular	1	1	4	2	4	3	4	5	5	3	4	2	38
Heart, enlargement of	5	2	3	4	2	2	4	1	2	5	1		31
Hernia, strangulated	1	1						1		1	1		5
Hemiplegia			2		1		2	1				1	7
Hooping-cough	5	8	10	8	5	8	7	4	1	3		2	61
Hydrophobia					1				1				2
Hysteria												1	1
Imperforate anus		1			1			1					3
Inflammation	1								1				2
Inflammation of the bladder		2		2	1	1	2	1	1	1		1	12
Inflammation of the bowels	11	10	5	14	25	16	23	7	15	13	7	6	152

Mortuary Report—Continued.

DISEASES.	Jan'y.	Feb'y.	March.	April.	May.	June.	July.	August.	Sept'r.	Oct'r.	Nov'r.	Dec'r.	Total.
Inflammation of the brain	5	4	4	3	7	3	7	5	1	5		1	45
Inflammation of the ear							1						1
Inflammation of the glands					1								1
Inflammation of the heart	7	2	1	1	1	2		1	1	2	1	3	22
Inflammation of hip joint								1					1
Inflammation of the kidneys		1		1	1	1	1						5
Inflammation of the liver	5	3	7	5	4	3	9	3	7	4	5	8	63
Inflammation of the mouth							1				1		2
Inflammation of the stomach	8	2	1	1	2	3	7	1	5	1	3	1	35
Inflammation of the spleen			1										1
Inflammation of the throat						1					2		3
Inflammation of the tonsils		1								1		1	3
Inflammation of the veins			1										1
Inflammation of the womb			2				1	1				1	5
Infanticide	1	3	2		1	2	1	1	2			2	15
Inanition				1	5	1	7	1	6	5	2	3	31
Influenza	2	1										1	4
Insanity	2				1				1				4
Injuries	4	1				1	2	3		2		2	15
Intemperance			5	1	1	2	3	3	1	1	2	3	22
Intussusception of intestines			3		1				1			1	6
Jaundice	1		1		1	1		1	2	1	1	2	11
Killed, accidentally	1		1	2		1				2			7
Killed or murdered			1			2	2						5
Labor, difficult	1	1		1	1		1	1	1				7
Laryngitis		2	4	2	2		2		2	2	1	1	18
Leucocythæmia			1					2	2		1		6
Leprosy										1			1
Lightning					1								1
Lockjaw	4	4	6	6	8	11	15	1	4	2	7	6	74
Marasmus, adult	1	1	1		2	1	4	3		1	2		16
Marasmus, infantile	12	10	10	9	30	25	23	17	7	25	14	9	191
Measles		1	6	6	21	13	16	3		2	1		69
Meningitis	10	14	16	11	23	11	6	8	6	3	9	3	120
Meningitis, cerebro-spinal	6	13	11	10	2	2	4	1	2	1	1	1	54
Myelitis		1				1							2
Neuralgia										1			1
Œdema of the glottis	1		1										2
Old age	10	11	4	6	7	9	2	8	7	10	9	9	92
Paralysis	4		2	2	2	4	2	1	7	9	2	4	39
Paraplegia					1					1			2
Peritonitis	1	9	2	4	1	2	5	3	3	3	4		39
Pericarditis		2									1		3
Pleurisy	2	3	1				1	4		2	1	1	15
Pneumonia	55	48	40	28	35	14	21	8	15	21	19	18	322
Pneumonia, pleura	3	3		1	1		1		1	1			11
Pneumonia, typhoid	2	1	1	2	1	2	1		2	1			13
Poison					1	2			1		1	1	6
Premature birth	5	4	3		3		4	5	7	1	3	3	38
Purpura					1			1	1	1			4
Rachitis				1									1
Recto-vag-fistula					1		1						2
Rheumatism	2	2	2		1		1			1	2	2	13
Rheumatism of the heart				1	1			1					3

Mortuary Report—Continued.

DISEASES.	Jan'y.	Febr'y.	March.	April.	May.	June.	July.	August.	Sept'r.	October	Nov'r.	Dec'r.	Total.
Rupture of the bladder								1					1
Rupture of the spleen							1						1
Salivation													
Septhaemia			1									1	2
Scrofula	1			2	1		1	1		2	1		10
Scurvy					2	1							3
Sclerema												1	1
Softening of the brain	5	4	3	4	7	2	1	4	5	1		2	38
Softening of the stomach										1			1
Small-pox	64	83	79	67	71	35	11	2	7	8	26	52	505
Spina-Bifida								1					1
Spasm of the Glottis							1			1			2
Strangulation							1						1
Stricture of the Esophagus													
Stricture of the navel							1						1
Stricture of the urethra												1	1
Suffocation	4	2	4		2	1		1	1			1	16
Suicide	2	1		1		1	2				1	1	9
Sunstroke							15						15
Syphilis			1	2		1	1			1			6
Syphilis, secondary	1	1								1			3
Syphilis, tertiary			1	1	4	1	3	1	1	1	1		14
Tabes-dorsalis		1					1						2
Tabes-mesenterica		3		3	2	3	2	4	6	3	3	2	31
Teething	3	3	3	12	16	16	15	6	3	6	9	6	98
Thrombosis							1						1
Trismus-nascentium	26	10	16	14	18	16	27	34	20	31	21	23	256
Tuberculosis	8	5	11	2	7	4	2	1				1	41
Tumor												1	1
Tumor of the abdomen													
Tumor of the brain			1								1		2
Tumor of the neck											1		1
Tumor of the ovary			1			2	1						4
Ulceration	1												1
Ulceration of the bones									1		1		2
Ulceration of the bowels		1	2						2			1	6
Ulceration of the heart		1											1
Ulceration of the leg												2	2
Ulceration of the stomach			1			1							2
Ulceration of the throat									1	1			2
Unknown	3		1	2	1			1	1	3	1	4	17
Uraemia		1			1		1			1	1		5
Varioloid											1	3	4
Wounds		1	1	2			1						5
Wounds, gunshot			6	1	1	2	6	3	1	2	3	2	27
Worms		1				2			1				4
Not stated	6	4		1	2	5	1	4	4	7	6	6	46
Total	642	556	603	600	930	562	773	498	624	713	500	504	7505
Still-born children	38	33	34	29	37	41	52	41	39	62	41	43	490

COLOR.

	Jan'y.	Feb'y.	March.	April.	May.	June.	July.	August.	Sept'r.	Oct.	Nov.	Dec.	Total.
White	388	312	323	341	568	332	523	341	457	510	342	302	4739
Black	181	177	203	188	242	144	149	97	100	124	102	122	1829
Mulattoes	68	62	72	54	112	76	95	54	60	72	52	78	855
Not stated	5	5	5	17	8	10	6	6	7	7	4	2	82
Total	642	556	603	600	930	562	773	498	624	713	500	504	7505

SEX.

	Jan'y.	Feb'y.	March.	April.	May.	June.	July.	August.	Sept'r.	Oct.	Nov.	Dec.	Total.
Males	383	335	378	367	523	310	450	266	388	421	295	280	4396
Females	253	217	223	231	404	248	319	230	232	285	205	223	3070
Not stated	6	4	2	2	3	4	4	2	4	7		1	39
Total	642	556	603	600	930	652	773	498	624	713	500	504	7505

AGES.

	Jan'y.	Feb'y.	March.	April.	May.	June.	July.	August.	Sep't.	Oct'r.	Nov'r.	Dec'r.	Total.
Under 1 year	105	85	100	117	232	134	212	120	108	145	92	89	1539
From 1 to 2 years	26	36	28	39	92	62	68	30	23	41	33	29	507
From 2 to 5 years	26	28	42	44	62	43	49	45	63	51	32	31	516
From 5 to 10 years	20	33	21	35	34	15	16	14	42	29	16	24	299
From 10 to 15 years	15	10	7	12	16	12	17	7	26	13	9	9	153
From 15 to 20 years	21	15	14	10	26	13	19	12	19	23	8	8	188
From 20 to 25 years	47	70	47	39	68	28	33	29	48	47	35	28	519
From 25 to 30 years	50	42	52	39	54	30	47	23	48	60	35	31	514
From 30 to 40 years	96	62	83	70	98	53	81	53	87	84	55	58	880
From 40 to 50 years	67	60	81	65	75	48	80	56	57	82	50	54	775
From 50 to 60 years	68	42	48	40	71	38	63	37	40	46	46	64	603
From 60 to 70 years	35	33	26	33	40	35	37	31	29	36	34	35	404
From 70 to 80 years	29	15	22	13	16	12	26	13	12	15	20	22	215
From 80 to 90 years	9	8	7	5	7	4	7	3	5	6	9	7	77
From 90 to 100 years	4	6	2	5	1	4	1	4	1	2	5	3	38
100 years and upwardse	0	1	2	0	3	1	2	0	0	4	1	2	16
Unknown	24	10	21	34	32	30	15	21	16	29	20	10	262
Total	642	556	603	600	930	562	773	498	624	713	500	50c	7505

NATIVITIES.

COUNTRIES.	Jan'y.	Feb'y.	March.	April.	May.	June.	July.	Aug.	Sept'r.	Oct'r.	Nov'r.	Dec'r.	Total.
Africa		1	2	1	2		1	2		2	1	1	13
Austria	2	2	1	1	2	1		3	2	6	2	2	24
British America	1				1	1		1	3		2		9
Canada	2	1		3		1	1	1	3	2	2	3	19
China	1	1	1		1	1	1	3	2	2	1		14
Denmark			1			1	2	3	1				8
England	8	6	6	10	5	4	7	6	11	10	4	5	82
East Indies									1				1
France	33	20	28	14	34	16	27	12	29	33	21	23	290
Germany	49	33	32	33	52	27	53	42	62	74	40	37	534
Greece		1						1					2
Holland					1					1			2
Honduras					1								1
Ireland	62	43	52	39	51	34	57	46	57	50	50	56	597
Italy	7	5	4	4	7	1	6	3	1	2	6	6	52
Malta													
Madeira										1			1
Mexico	3	2	2	1			1	1		2			12
Norway	1			1	1	1	2			1			7
Poland										1			1
Portugal		1					2	1		1	1		6
Prussia	2	2	1	2	1	2	2	1		1	1		15
Russia		1							1	1			3
Scotland	6	1	2		3	2	3		3	4	1	3	28
Sea		1								1	2		4
South America					1								1
Spain	6	5	1	7	7	1	2	2	5	5	5	3	49
Sweden		1	1	1	1			1	1	2			8
Switzerland	2	3	2	5	3	1	1	2	5	4	1	2	21
United States	446	442	459	470	733	457	593	355	429	480	333	350	5517
Wales										2			2
West Indies	6	5	6	3	6	4	6	4	1	9	8	5	63
Not stated	5	9	2	5	17	7	6	8	7	16	19	8	109
Total	642	556	603	600	930	562	773	498	624	713	500	504	7505

Table 1—Comparative Statement of Deaths from the Principal Diseases, in the City of New Orleans, during the Seven Years, 1867 *to* 1873, *inclusive.*

DISEASES.	1867	1868	1869	1870	1871	1872	1873
Apoplexy	91	72	85	124	102	85	114
Albuminuria	9	10	17	25	27	7	20
Bright's disease	9	74	18	17	22	47	31
Bronchitis	84	71	81	89	62	99	108
Consumption	671	632	684	757	780	784	850
Cancers	63	79	90	101	90	89	93
Cholera infantum	100	85	56	65	84	52	118
Congestion of brain	160	91	108	99	141	186	201
Delirium tremens	23	22	13	22	18	23	17
Diptheria	31	16	19	19	14	39	46
Drowned	80	62	59	69	74	64	77
Fever, bilious	45	29	12	35	25	22	28
Fever, congestion	533	207	228	241	163	165	246
Fever, intermittent	51	30	32	27	26	27	16
Fever, remittent	110	36	36	51	39	26	40
Fever, scarlet	24	14	13	44	5	3	3
Fever, typhoid	119	68	63	80	71	67	57
Fever, typhus	23	5	5	13	4	4	5
Fever, yellow	3107	3	3	587	54	39	226
Heart disease	121	100	171	249	190	169	225
Lockjaw	128	404	134	119	79	73	74
Trismus nascentium	246	159	136	186	234	238	256
Measles	2	1	217	23	12	56	69
Pneumonia	285	235	323	320	271	317	346
Premature birth	52	63	113	110	52	64	38
Small-pox	40	14	137	528	2	29	505
Softening of brain	23	25	33	31	28	33	38
Sunstroke	6	1	4	6	8	7	15
Stillborn	510	505	408	449	404	466	444
Syphillis	12	9	9	35	20	19	23
Teething	107	56	63	78	88	90	98
Gunshot wounds	3	34	25	15	26	26	25
Total deaths, less stillborn	9586	4838	5593	6943	5595	6122	7505

Table II—Showing Relative Mortality of Children under two years of age, in New Orleans during the year 1873, *according to population, United States Census of* 1870.

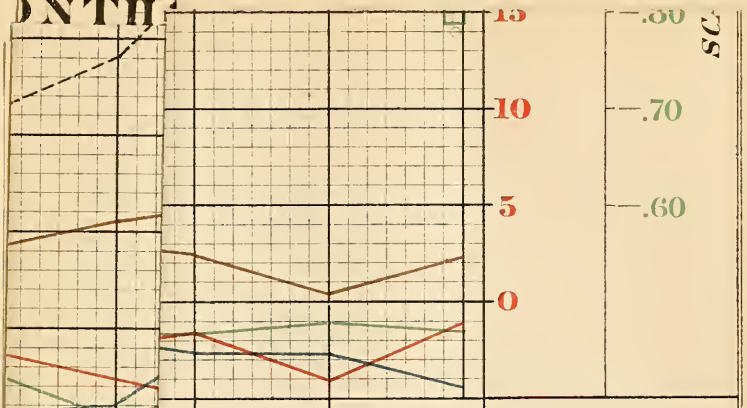
MONTH.	Number of Deaths.		Percentage of Deaths to population.		No. of Deaths to 1000 pop'ln.	
	White.	Colored.	White.	Colored.	White.	Col'd.
January	80	51	.01145	.02185	11.450	21.850
February	70	51	.01002	.02185	10.024	21.850
March	65	63	.00931	.02700	9.307	27.000
April	104	52	.01489	.02223	14.890	22.230
May	211	113	.03021	.04849	30.210	48.490
June	107	89	.01532	.03813	15.320	38 130
July	176	104	.02520	.04456	25.200	44.550
August	100	50	.01432	.02144	14.320	21.440
September	85	46	.01217	.01971	12.170	19.710
October	122	64	.01747	.02742	17.470	27.420
November	77	48	.01120	.02056	11.200	20.565
December	66	52	.009450	.02228	9.450	22.280
Average	105.25	65.25	.01507	.02796	15.070	27.96
Total	1236	783	.18156	.33547	181.56	335.47

White population, under 2 years.....6984.

Colored population, under 2 years.....2334.

UNDE City of New Orleans

ONTH



0.46	0.45	1.35	43.40 TOTAL
30.018	30.027	30.014	30.046 MEAN
60.7	82.0	82.4	65.84 MEAN

John.W. Madden 73 Camp St. New Orleans La.

er:

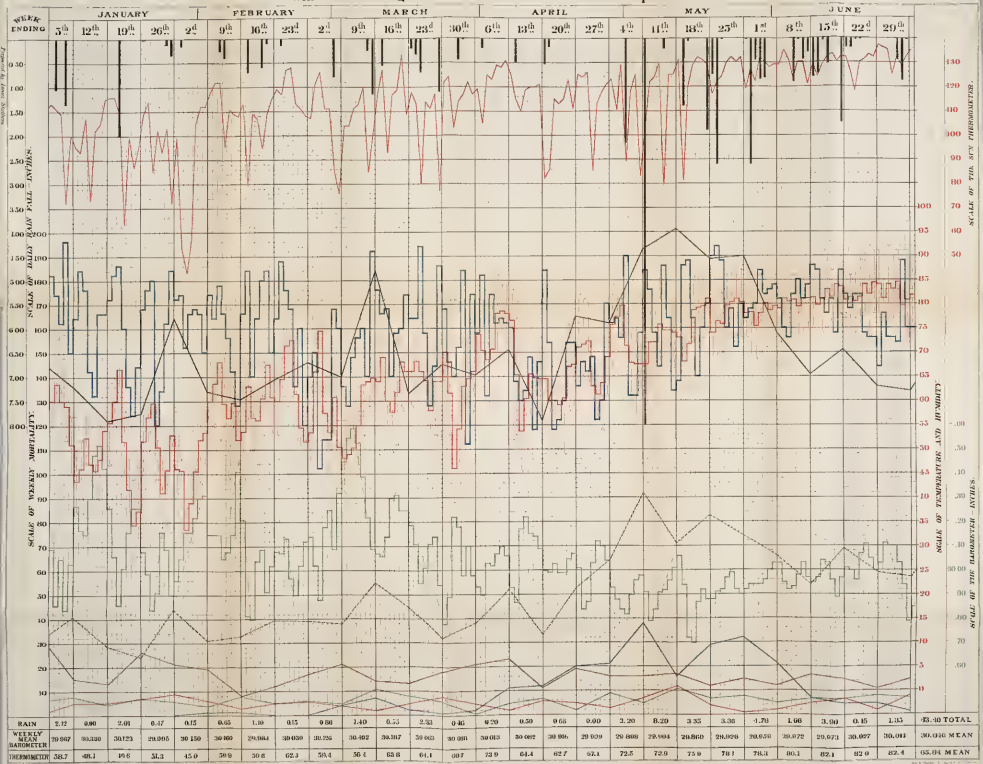
ometers).

CHART

Illustrating the Course of the TOTAL MORTALITY, MORTALITY OF CHILDREN UNDER FIVE YEARS OF AGE, and the CHIEF FATAL DISEASES, in the City of New Orleans

DURING THE SIX MONTHS ENDING JUNE 30TH 1873.

With Meteorological Observations for the same period.



RAIN	2.12	0.00	2.01	0.47	0.15	0.65	1.10	0.15	0.96	1.40	0.55	2.23	0.46	0.20	0.50	0.66	0.00	3.20	6.29	3.35	3.36	1.76	1.96	3.90	0.45	1.35	43.40	TOTAL
WEEKLY MEAN BAROMETER	29.967	30.120	30.123	29.905	30.150	30.460	29.984	30.030	30.126	30.492	30.187	30.063	30.091	30.063	30.007	30.006	29.939	29.866	29.904	29.860	29.920	29.650	29.972	29.971	30.097	30.044	30.016	MEAN
THERMOMETER	58.7	48.1	49.6	51.3	45.0	58.9	50.6	62.3	59.4	56.4	63.6	64.1	69.7	72.9	64.4	62.7	62.1	72.5	72.9	75.9	76.1	78.1	80.1	82.1	82.0	82.4	65.64	MEAN

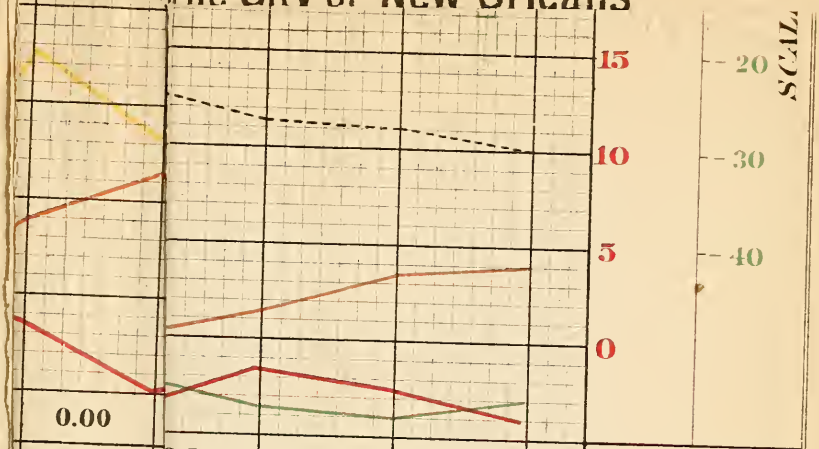
The heavy black line in centre of chart represents total mortality, from all causes.
The broken black line near bottom of chart represents mortality of children under 5 years.
The character line represents mortality in Pleurisy Pulmonalis.
The blue line at bottom of chart represents mortality in children and children nurses.
The red line at bottom of chart represents mortality by Congestions.
The green line at bottom of chart represents mortality by all Fevers.

The irregular red line at top of chart shows daily Maximum of Inter-tropical, recorded by the black bulb Thermometer.
The blue line in centre of chart shows Relative Humidity daily (Saturation 100)
The red curve at rest of proportionate bars shows daily range of Temperature (by Maximum and Minimum Thermometers)
The red line in under of chart shows daily Mean Temperature
The green line above, daily Mean Barometer
The proportionate bars of top of chart show daily rain fall in inches

C

ILDREN

the City of New Orleans



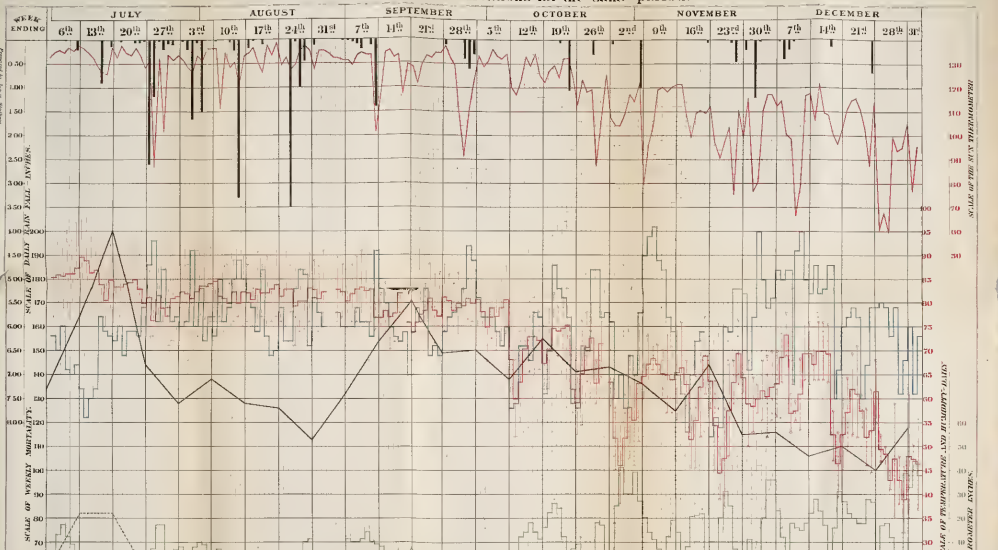
0.00					
29.960	0.11	0.00	0.00		31.74 TOTAL
77.71	0.200	30.231	30.266		30 084 MEAN
	3.54	56.57	47.38		72 017 MEAN

CHART

Illustrating the Course of the TOTAL MORTALITY, MORTALITY OF CHILDREN UNDER FIVE YEARS OF AGE, and the CHIEF FATAL DISEASES, in the City of New Orleans

DURING THE SIX MONTHS ENDING DEC. 31st 1873.

With Meteorological Observations for the same period.



WEEK ENDING	6th	13th	20th	27th	3rd	10th	17th	24th	31st	7th	14th	21st	28th	5th	12th	19th	26th	2nd	9th	16th	23rd	30th	7th	14th	21st	28th	31st	
RAIN	0.20	1.82	0.15	4.36	3.40	5.58	0.26	4.59	0.13	1.87	0.60	0.08	1.40	0.00	0.60	1.15	0.30	1.06	4.66	0.01	0.47	1.41	0.62	0.15	0.00	0.00	31.74	TOTAL
MEAN BAROMETER	30.052	29.932	30.035	30.027	30.068	30.029	29.932	30.107		30.106	30.031	29.960	29.971	29.969	30.009	30.150	30.037	30.274	30.123	30.112	30.034	30.143	30.140	30.200	30.231	30.266	30.084	MEAN
MEAN THERMOMETER	85.53	86.01	83.44	79.77	82.65	81.75	82.60	81.70	82.44	81.50	78.36	77.71	80.14	78.44	68.93	71.29	62.22	55.70	60.11	64.03	57.57	61.03	64.38	63.54	56.57	47.33	72.07	MEAN

The heavy black line in centre of chart represents total mortality, from all causes.
The broken black line near bottom of chart represents mortality of children under 5 years.
The green line at bottom of chart represents mortality from all fevers.
The shaded area represents mortality by Pulmonic Pulmonalis.
The red line at bottom of chart represents mortality by Congestions.
The yellow line at bottom of chart represents Mortality by Yellow Fever.

The irregular red line at top of chart shows daily Marquam of Labor Intel.
The irregular blue line in centre of chart represents Mean Barometric daily.
The red curved continued in perpendicular bars shows highest and lowest Temperature daily.
The irregular red line in centre of chart represents Mean Thermometer daily.
The irregular green line represents Mean Thermometer Pressure, daily.
The green circles show greatest highest and lowest Pressure within each week.

It will be seen by the above tables that the total number of interments for the year 1873 is 7505, this is more than an average number of deaths for the last ten years; it is accounted for, by the fact, that there have been 505 deaths from small-pox during the year; 359 deaths from the various forms of cholera, and 226 deaths from yellow fever, making from these three unusual causes 1090 deaths, which being deducted from the total mortality (7505) leaves 6415, about a fair average mortality for the last ten years.

CONSUMPTION.

There have been 850 deaths from consumption: 493 were white, 348 colored, and 9 not stated. Of the 850 deaths by consumption, 348 were natives of Louisiana; 282 were from Europe; 126 were from Southern States, other than Louisiana; 47 from the Northern States; 47 not stated. Forty-six were under ten years of age; 48 were between ten and twenty; 246 between twenty and thirty; 198 between thirty and forty; 143 between forty and fifty; 157 over fifty years of age, and 12 not stated.

TRISMUS NASCENTIUM.

Of the 256 deaths by trismus nascentium, 128 were white, and 104 colored, and 24 not stated.

Of the 490 still-births, 241 were white; 218 colored, and 31 not stated.

Of the 359 deaths by cholera, cholera morbus and infantum, 205 were white and 154 colored.

Of the 505 deaths by small-pox, 107 were white, and 398 were colored.

Of the 2046 deaths of children under two years of age, 1224 were white; 757 were colored, and 65 not stated.

There were 15 deaths by sunstroke during the first week in July; this is an unusual number, five being the average mortality from this cause for the last six years.

There were 1114 interments from the public institutions: 1289 were interred on certificates of Coroners, and 145 on certificates of midwives.

Assuming the population of New Orleans to be 200,000, the death rate will be a little more than thirty-seven deaths to the thousand people.

S. C. RUSSELL, M. D.

Secretary of Board of Health, State of Louisiana.

REPORT OF THE TREASURER.

S. C. RUSSELL, M. D.

OFFICE OF THE BOARD OF HEALTH,
New Orleans, December 31, 1873.

To the Board of Health:

GENTLEMEN—I have the honor to submit herewith a report of the receipts and expenditures by the Board of Health for the year 1873.

The receipts from different sources were:

From the Mississippi station	$18,336 69
From the Atchafalaya station	1,989 00
From the Rigolets station	1,635 65
From State warrants sold	3,561 00
From other sources	19 50
Total amount received	$25,541 84

The expenditures were:

For the Mississippi station	$13,493 73
For the Rigolets station	1,557 08
For the Atchafalaya station	699 10
For the Laboratory	203 95
For Sanitary Inspector's offices	97 50
For office expenses	7,651 68
For stationery, printing, etc	754 58

For microscope and meteorological instruments	1,186 03
For sums hired in 1872.....	450 00
Total expenditures.....	$26,093 65

The Board is still indebted for the sum of six thousand dollars ($6,000). This is occasioned mostly by the low price of warrants, and also for sums paid during the year for scientific instruments, etc., as will be seen in the financial portion of the general report by the President.

The bestowal of the office of Register of Births, Deaths and Marriages on the Board of Health, with its fees and emoluments, or an appropriation of seven thousand dollars ($7,000), will be necessary to pay the debts and expenditures for the year 1874.

Treasurer of the Board of Health in account with the State of Louisiana.

DR.

To cash on hand, January 1, 1873. ....$	538 83	
To Quarantine drafts on hand January 1, (uncollected)	446 45—	985 28

TO MISSISSIPPI STATION.

To cash received from fees on vessels via Mississippi station, as per rolls.	$18,326 50	
To cash received from sale of one half-barrel molasses, returned from station in bad condition.....	7 69	
To cash received from old sail sold at station	2 50—	18,336 69

TO ATCHAFALAYA STATION.

To cash received from fees on vessels via the Atchafalaya station, as per roll	1,989 00—	1,989 00

TO RIGOLETS STATION.

To cash received from fees on vessels via the Rigolets station, collected at the station, as per rolls	$ 1,377 00	
To cash received from fees on vessels via the Rigolets station, collected at the basins	258 65—	1,635 65

TO APPROPRIATIONS.

To cash received from sale of one State warrant ($1000), balance of appropropriation 1872, sold at 62½ per cent discount.....	$ 375 00—	$375 00
To cash received from sale of State warrants ($2,600), appropriation of 1873, sold at 63 per cent discount.	962 00	
To cash received from sale of State warrants ($3,900), appropriation of 1873, sold at 50 per cent discount.	1,950 00	
To cash received from sale of State warrant ($100), appropriation of 1873, sold at 48 per cent. discount .	52 00	
To cash received from sale of four State warrant ($400), balance of appropriation of 1873, sold at 44½ per cent. discount.....	222 00	3,186 00

TO OTHER SOURCES.

To cash received from court costs in sundry cases, paid by Board in 1872, and recovered in 1873.....	$ 19 50	19 50
Total amount received.....		$26,527 12

CR.

BY MISSISSIPPI STATION.

Paid on account of salary of resident physician, for the year 1873, at $5000 per annum.....	$ 4,688 29

Paid salary of assistant physician for the year 1873, in full, at $2000 per annum	2,000 00
Paid wages of employees at station, for the year 1873, in full	3,720 40
Paid for groceries and supplies furnished station during the year 1872.	909 95
Paid for groceries and supplies furnished station in the year 1873	594 94
Paid for fuel and lights for station	317 49
Paid freight on supplies, etc., to station.	72 45
Paid resident physician's bills for incidental expenses, vegetables, etc., purchased at station during the year	388 49
Paid J. Mahoney, boat built for station in 1872	206 75
Paid for blankets, bedding, crockery-ware, etc., for hospital at station	102 30
Paid for disinfectants for station	103 53
Paid for drugs, medicines, etc., for station	52 48
Paid C. A. Whitney & Co., fees on steamers of Morgan's Line, returned by order of the Board	40 00
Paid B. Fasterling, sundries supplied station	57 37
Paid for one stove and fixtures for station	31 40
Paid for telegraphing to and from station	29 60
Paid for stationery for station	39 50
Paid for repairing boat at station	25 00
Paid for hardware supplied station	19 45
Paid for awnings for station	22 77
Paid for lime, etc., for repairs at station	16 30
Paid for six oars for station	14 40
Paid for burying dead at station	10 00

Paid passage of resident physician to city, and return	8 00	
Paid for tubs, chairs, etc	14 40	
Paid for bunting, leather, etc	8 47	$13,493 73

BY ATCHAFALAYA STATION.

Paid Dr. J. H. Handy, salary as resident physician, from May 1st to October 31st, 1873, at $100 per month	600 00	
Paid wages of employees at station	56 50	
Paid for repairs on boat at station	24 70	
Paid for one pair oars at station	3 40	
Paid sundry expenses at station	14 50	$ 699 10

BY RIGOLETS STATION.

Paid Dr. S. Allen, balance of salary due him as resident physician at station in 1872	$ 351 30	$ 351 30

Paid Dr. M. A. Roach, salary as resident physician, from July 1st to Oct. 5th, 1873, at $200 per month	640 00	
Paid wages of employees at station, from July 1st to October 5th, 1873, in full	528 00	
Paid for paints, oils, etc., for station	15 78	
Paid passage of men and supplies to and from the station	11 00	
Paid for bunting for station	5 75	
Paid for repairing boat at station	1 50	
Paid sundry expenses at station	3 75	$ 1,205 78

BY LABORATORY.

Paid New Orleans Gas Light Company gas supplied laboratory and office during the year	$ 148 25

Paid for chemicals, etc., used in laboratory during the year.....	19 45	
Paid for fixtures, etc., for laboratory...	36 25—$	203 95

BY SANITARY INSPECTORS' OFFICES.

First District.

Paid car fare of Sanitary Police, and incidental expenses at office during the year.....$	34 35	

Second District.

Paid car fare of Sanitary Police and incidental expenses at office during the year.....$	29 10	

Third District.

Paid car fare of Sanitary Police and incidental expenses at office.....$	11 05	

Fourth, Fifth and Sixth Districts.

Paid car fare of Sanitary Police and incidental expenses..... ...$	23 00—$	97 50

BY GENERAL EXPENSES.

Office Expenses.

Paid salary of President from September 1st to December 31st, 1872, at $2000 per annum.... .....'...	$666 72	
Paid on account of salary of President, from January 1st to May 31st, 1873, at $2000 per annum.....	833 30	
Paid balance of salary of Secretary and Treasurer from November 1st to December 31st, 1872, at $2000 per annum.....	333 40	
Paid on account of salary of Secretary and Treasurer from January 1st to July 31st, 1873, at $2000 per annum.....	1,166 62	

Paid salary of clerk from January 1st to December 31st, 1873, at $1500 per annum	1,500 00
Paid rent of board rooms from January 1st to December 31st, 1873, at $900 per annum	900 00
Paid balance of salary of Attorney for the year 1872, at $600 per annum	400 00
Paid on account of salary of Attorney, for the year 1873, at $600 per annum	100 00
Paid wages of porteress from January 1st to December 31st, 1873, at $20 per month	240 00
Paid services of messenger from January 1st to December 31st, 1873, at $12 per month	144 00
Paid expenses of President to New York and return, as delegate to American Public Health Association	151 10
Paid court costs in sundry suits during the year 1872	276 50
Paid for lithographing 1000 charts, oscillations of river and sub-soil water in 1872	100 00
Paid for lithographing 1000 charts of yellow fever, in Fourth District, in 1872	100 00
Paid for one set telegraphic instruments and freight on same from New York	81 50
Paid for shelving and sun shade erected at office in 1872	35 00
Paid for instrument shelter for meteorological instruments	58 00
Paid for office furniture, matting, tables, etc	79 04

Paid for advertising ordinances, etc., in city papers	70 25	
Paid subscriptions to city papers during the year	51 00	
Paid subscriptions to scientific papers and journals	13 00	
Paid for books for library	28 85	
Paid for taking levels of subsoil wells.	15 00	
Paid for preparing chart of oscillation of river and subsoil water	13 00	
Paid insurance on microscope and other instruments	21 25	
Paid rent of safe in vault of La. State Bank for one year ending Dec. 10, 1874	30 00	
Paid for fuel for office	14 75	
Paid for ice for office	12 45	
Paid for box for records	4 75	
Paid water-rate for one pear	10 00	
Paid post office box rent for one year.	9 05	
Paid for vaccine virus	10 65	
Paid for emptying vault	9 35	
Paid cable dispatch to Havana	8 75	
Paid freight on books from New York.	4 10	
Paid for repairing seal	2 00	
Paid for blower for grate	2 00	
Paid for kindling wood, etc.	5 85	
Paid incidental expenses of office, porterage, internal revenue stamps, etc., as per petty cash book during the year	150 45—	7,651 68
Paid J. W. Madden for stationery, printing, blanks, blank books, etc., for office Quarantine Station and Sanitary Inspector's offices, from April 1 to Dec. 31, 1872	604 73	
For stationery, blanks, blank books, etc., for the month of January, 1873	149 85—	754 58

Paid A. W. Smyth, balance due him for sum advanced to B. J. Beck, London, for microscope and meteorological instruments.....	1,186 03—	1,186 03
Paid note, drawn October 18, 1872, favor Freedmen's Savings Bank....	450 00—	450 00
Total amount expended		$26,093 65
By Quarantine drafts on hand, uncollected.....	276 45	
By cash on hand	157 02—	433 47
		$26,527 12

S. C. RUSSELL, M. D.,
Treasurer of the Board of Health, State of Louisiana.

I have this day examined the books, vouchers and papers of the Board of Health, for the year ending December 31, 1873, and have found the same correct in every detail.

CHARLES HILL,
Examiner, State Auditor's Office.

APPROVED:
CHAS. CLINTON,
Auditor.

REPORT OF SANITARY INSPECTOR, FIRST DISTRICT, E. S. DREW, M. D.

OFFICE SANITARY INSPECTOR, FIRST DISTRICT,
New Orleans, La., January 1st, 1874.

C. B. WHITE, M. D., *President of the Board*:

SIR—On the 15th of April, 1873, I was installed in office as Sanitary Inspector for the First District of this city, and the following report will give in general and tabulated form the work which devolved upon the officers connected therewith. Various and extraneous causes have somewhat hampered and restrained me in my work. Every facility and assistance, however, which could be afforded by the city, and could be prompted by the Board of Health, to enable me in the execution of health ordinances, I have availed myself of. The result as herein given will, I trust, meet the approbation of the Board and the public.

SMALL-POX.

The action taken by the City Council in establishing a small-pox hospital, to be supervised and directed by a physician of their selection, has been a want which greatly needed consummation. The location of the present hospital might be improved upon, for in a few years an institution of that kind will be a serious drawback to the improvement of a most desirable portion of the city, and as an institution for the especial treatment (and if possible, confinement) of that loathsome disease, is a public necessity, an isolated and healthy location should be selected for it. The Metairie ridge, easily reached by several smooth shell roads, just below the barracks, or across the river, between Algiers and McDonoughville, either of which would be easily accessible by boat, could be made a permanent location.

The difficulty experienced by the sanitary officers in their efforts to eradicate this fearful malady, is worthy of remark. With all their rebuffs, and the frequent objections to the re-

moval of cases, fumigation of houses, etc., the records of this office exhibit a very satisfactory result.

The total number of cases during the year 1873 was 238. There were 161 cases reported from January 1st to April 15th, and 77 cases from that date up to the 1st inst., showing the vigilance of the officers in the latter part of the year, and the invaluable benefits to the community of disinfectants. One hundred and nine squares on which the disease made its appearance, were disinfected, and all of the houses where cases were found, fumigated several times. The good results of this watchfulness are shown by the fact, that during the months of August, September and October, not a case occurred (at least it was not reported) in this district.

These squares contained a population of 21,795, averaging 91.37 per cent. of cases. The number of deaths I could not arrive at, inasmuch as many were sent to the hospitals, and their recovery or death were not always reported to the Board of Health.

CHOLERA.

By reference to the accompanying chart it will be shown that choleraic diseases were prevalent only during the months of April, May and June, which, in my opinion, was due not to atmospheric poison characterizing genuine Asiatic cholera, but to the use of immature vegetables in diet. It will be remembered that the rain-fall was frequent and excessive during the spring and summer months, and every species of vegetables attained undue growth, and failed to mature within the proper season. The situation of a residence, nor its surroundings, did not aid in its propagation, for in but few instances did it attack more than two persons in one house; and if it is considered how the poorer classes of our people live—their compulsory huddling in tenements, the insufficient water supply, notwithstanding the copious rains of the past year, and their seeming antipathy and antagonism to the first principle conducive of health, cleanliness—we are to be congratulated on the brief visitation of this disease. The proportion of deaths of whites is slightly in excess of the colored population, and the great majority of races were of that class who were

never imbued with an idea which would prompt an attempt at health preservation.

YELLOW FEVER.

It is admitted by our best authorities on yellow fever, that when the Mexican, or Cuban yellow fever has been imported here, the type of that fever then prevailing, sporadic or otherwise, has invariably assumed a malignancy which baffled the skill of our most eminent medical men, and carried thousands of our citizens to untimely graves. That we have yellow fever in this city every summer and fall can, I think, hardly admit of doubt, for lying in the belt or zone in which that disease is regarded as one of those maladies, having its origin in atmospheric, or malarial causes, or peculiarities—every precautionary measure that has been exercised towards its total elimination, thus far failing, stands in evidence, and we are furnished with no instance of a passing summer without having, more or less, sporadic cases.

Since the completion of the several lines of railroad leading to this city, it is an impossibility to prevent the introduction of a foreign type of that disease, it simply being a question of about three days, when a passenger can land in this city after leaving Havana; therefore, we are to develope and adopt some measures within the local resources of the city, that shall best meet the exigencies and emergencies which may arise in the sanitary condition of the community. Prevailing in an epidemic form, or otherwise, its type, mild or malignant—we have yellow fever as a specific disease to contend with, after all—as its pathology does not change. The inefficiency of those legal restraints, which inflict greater commercial injuries than they afford benefits to public health, and the fact that pre-disposing causes for generating and developing yellow fever exist in our midst, it behooves the profession and the municipal authorities, to institute a system of hygeine, by which the scourge can be successfully combatted in its incipiency, and that brings me to the consideration of

DISINFECTANTS AND THEIR USES.

Excellent as are the ordinances, even admitting always a willing compliance on the part of the citizens, they are insuffi-

cient to overcome, or control, those co-ordinate causes of diseases, which have given this city the reputation of being unhealthy. It is evident to every practical mind, that from our topographical and geographical localities, malarias arise and manifest their baneful effects, directly and indirectly, upon every material interest of this city. Animal and vegetable matters are decomposing in the streets and gutters, with a few exceptional days, the entire year, and only by artificial means enforced can the health of such commingled classes of people who constitute the population of New Orleans be preserved. Cosmopolitan, in every sense of the word, are its habitues. Every nativity, habit, custom, race, and, I may say, temperament, are represented in our permanent and transient population, all of which, in the adoption of health ordinances and organization of sanitary boards, should be well considered.

I cannot too strongly express the gratification I feel that chemical science has finally furnished us with an infallible process of neutralizing all noxious and malarial gasses, when promptly and judiciously applied. This city has, through these providential agents, carbolic acid, zinc-iron, chlorine gas, etc., been spared this past season the scourge which has so blighted hopes and marred the happiness of populous and wealthy cities and communities throughout the South.

In this district, the largest and most thickly inhabited of the six districts composing this city, with every cause existing as in past years for generating and developing all descriptions of malarial and climatic diseases, its upper line is separated by a narrow street from the Fourth District, in which the first imported case, and I believe the first genuine case of yellow fever, made its appearance on the Spanish bark Valeparaiso, causing more cases and deaths, I believe, than were observed in either of the other districts, the timely and free use of carbolic acid, I am fully convinced, confined it to given centers or circles. Those centres in this district, published in the annual reports of Board of Health for 1871 and 1872, under my personal observation, a regular and systematic weekly disinfection of premises, prevented a re-development of the disease, and during the prevalence of the fever this past season, although assuming a virulent and malignant type from its in-

ception; with the exception of three houses—217 Constance street, 66 Girod street (two doubtful cases) and 184 Robin street—not another case occurred after fumigation and disinfection.

FEVER CENTRES—TOTAL 55.

Premises paved, 37; unpaved, 18	55
Effective yard drains, 44; inefficient, 11	55
With leaky vaults, 3; good vaults, 52	55
Low lots in vicinity, 10; lots filled, 45	55
Average distance of floors above ground	$13\frac{44}{100}$ in.
Average number of rooms to houses	$7\frac{22}{100}$
Average number of persons to house	$6\frac{24}{100}$

Tabular Arrangement of Yellow Fever Cases in First District.

No. of Square.	Attack. Order of.	Attack. Date of.	City. Time in. Years.	City. Time in. Months.	Age.	Disinfection. Date.	Disinfection. No Premises.	Disinfection. No. of Streets.	Quantity. Pints.	Quantity. Barrels.	Population in Area of One Square. Unacclimated.	Population in Area of One Square. Total.	Cases in this Area. Previous.	Cases in this Area. Subsequent.	Cases in this Area. Total.
364	1	Aug. 20	3		24 yrs.	Aug. 28	24		6		33	103	None.	None.	1
101	2	" 23	3	6		" 28	13	12		6	7	31	None.	None.	1
58	3	" 26	4		35 "	Sept. 5	26	14	8	10	29	111	None.	Two.	3
281	4	Sept. 3		3	24 "	" 7	33		12		42	198	None.	None.	1
58	5	" 3	9		21 "	" 5	26	8	8	6	29	100	One.	One.	3
151	6	" 6		15 days	19 "	" 16	19		8		32	115	None.	Two.	3
36	7	" 6			30 "	" 7	21	12		12	28	104	None.	None.	1
70	8	" 7	8		46 "	" 14	13		5		27	119	None.	None.	1
417	9	" 11	19		19 "	" 16	28		8		36	135	None.	None.	1
35	10	" 11	5		23 "	" 13	10	10	8	8	30	84	None.	None.	1
161	11	" 14				" 18	43	14	9	8	107	347	None.	None.	1
102	12	" 15		11 days	17 "	" 20	11	10	6	10	24	60	None.	None.	1
578	13	" 15	1		21 "	" 23	14	9	4	8	8	79	None.	None.	1
6	14	" 16		4 wks.	37 "	" 19	20	3	3	6	19	80	None.	One.	2
151	15	" 18	3		5 "	" 23	19		3		32	115	One.	One.	3
201	16	" 18	11		33 "	" 29	24		6		23	173	None.	None.	1
258	17	" 18	10		39 "	" 23	23		7		52	248	None.	None.	1
121	18	" 19		6	34 "	" 26	42	9	2	10	20	117	None.	None.	1
463	19	" 20	21	9 days	21 "	" 22	27		4		30	149	None.	None.	1
580	20	" 24			32 "	Oct. 1	11		3		17	108	None.	None.	1
324	21	" 24	5		20 "	Sept. 29	35		4		31	266	None.	None.	1
60	22	" 30				Oct. 3	24		3		28	180	None.	None.	1
265	23	" 30		5 days	40 "	" 5	38		2		42	265	None.	None.	1
58	24	Oct. 3		2 wks.		" 7	26		4		29	100	Two.	None.	3
45	25	" 8	1		1 "	" 14	10		2		20	76	None.	None.	1
253	26	" 9	9		22 "	" 15	25		5		35	164	None.	None.	1
17	27	" 11		3 wks.	56 "	" 16	25		2		24	170	None.	One.	2
173	28	" 13		1	30 "	" 16	8		2		34	207	None.	None.	1
147	29	" 16		2 wks.	21 "	" 22	17		4		18	96	None.	One.	2
151	30	" 19	3		72 "	" 22	19		2		32	115	Two.	None.	3
6	31	" 20		3 days	48 "	" 24	10		4		19	80	One.	None.	2
257	32	" 22		5		" 25	27		3		34	250	None.	None.	1
72	33	" 23		1	26 "	" 26	14		2		54	274	None.	None.	1
147	34	" 26	1	1	21 "	" 31	1		2		18	96	One.	None.	2
17	35	" 28	1	6	45 "	Nov. 2	25		5		24	170	One.	None.	2
126	36	Nov. 1	14		29 "	" 5	19		3		23	90	None.	None.	1
69	37	" 1	6		25 "	" 7	31		3		14	161	None.	None.	1
403	38	" 5		7	23 "	" 12	53		10		48	188	None.	None.	1
	39	A. Bearing died at Hotel Dieu													1
	40	M. Goldstein died at Touro Infirmary													1

WATER SUPPLY.

It is a subject of no little surprise that we have never availed ourselves of that greatest of all health-promoting element, water, which Nature has so bountifully supplied at our very doors. It has been aptly remarked that water is the best of all disinfectants and deodorizers. Then the necessity of having fresh water coursing through every gutter, running perpendicular to the river, and parallel also, if the grades and drains would permit, becomes the more apparent; when in this district it proved such a valuable adjunct to other methods adopted for correcting and neutralizing malarial poisons. It seems to me that an economical system of water works could be effected, which would furnish a constant and generous supply of water to every portion of the city, would prevent the decomposition of all animal and vegetable matters, by its excess and currents, by disintegrating all such solids and substances. Thousands of the inhabitants residing in the rear portion of the city have no water facilities, and especially during a drouth, which frequently occurs through our long summers, that class of tenants who occupy small and cheap houses particularly, suffer. Many of these houses have no water supply—neither cistern, hydrant nor well, as if they had been constructed with the view to the discomfort of those who could not afford to pay for better accommodations—and as water, the chief element of cleanliness, and that *human virtue*, a health-promoter, advantage should be taken of that vast volume of water which majestically rolls its turbid currents oceanwards. Clean streets and gutters are essentials to health in all large cities, and especially those situated in malarial districts. Even now, under the disadvantages under which the health officers of this city are placed, and the difficulty of enforcing a strict compliance with the health ordinances, its death rate will compare favorably with that of any other city in the United States, and we but need increased water facilities to yet lessen the mortality.

HOTELS AND OTHER PUBLIC BUILDINGS.

That the method of emptying hotel water-closets is injudicious, is demonstrated by the frequent complaints which reach

this office from the residents on Common and Gravier streets, west of Carondelet street; and that their complaints are justifiable, my own examinations and inspections, repeatedly made after 11 o'clock, P. M., will substantiate. The city ordinance, or the tacit consent which given, or ever gave, authority to public establishments to empty the contents of their water-closets into the street gutters, is a violation of every principle of sanitary law—for along the line of the sluggish flow of the conduits the atmosphere is contaminated by nauseous, mephitic gasses; the mud which accumulates in the gutters, and is afterwards so often shoveled out on the street again, is so thoroughly saturated with fecæ that, especially on Common street, an effluvia is given off, night and day, to that disagreeable extent that remedy is imperatively demanded. I would suggest the adoption of one of two methods for abating the nuisance. Let the St. Charles, City, Cassidy's, St. James, and other hotels in proximity, have a common pipe laid from Carondelet street to the river, into and through which the contents of their vaults could be forced by steam, or have no distinction made between public and private houses. The private citizen must undergo the expense of employing a vidangeur, when with equal facility he could have the contents of his vault, once a month, washed into the gutter; nor can I appreciate the reason why the proprietors of hotels and other public institutions should exercise privileges not in the least calculated to promote the health of the city denied private citizens.

MARKETS.

The markets are kept as cleanly as institutions of that character and localities will permit. Inspections frequently made assure me no cause has arisen for complaint, so far as the butchers and vegetable vendors are regarded; nor do I see how the markets could be better or more cleanly kept, unless washed every day, instead of only twice a week. The officers on duty at those centres in this district deserve much credit for their vigilance and energy, for, with such inadequate means, their work could not be more efficiently performed.

DAIRIES.

In my report for the month of July last, under instructions from the President of the Board of Health, with Officer

Wooddy, I made a special inspection of all the dairies in this district, the majority of which I found were, and are kept, in excellent order. The object of that inspection, however, was to have me define the streets, or line, within the corporate limits of the city, in the event a city ordinance would subsequently require the removal of any of them. I suggested the line should be from Canal street, up Broad street, to the new canal, along it to Claiborne street, and thence up Claiborne street to Felicity Road. Several of those stables, however, situated on Gaiennie street, between Constance and Annunciation streets, have proved a *chronic* nuisance. It is proverbial that all dairymen are healthy and long-lived., and no better reason can be assigned, therefore, than that the constant evolution of ammoniacal gasses counteract, in a great measure, malarias.

BATTURES.

From my report of July I also quote, "A special inspection with officer Wooddy, was made with reference to that portion of Delta street, or Batture lot, situated between portions of depot properties of the N. O., Mobile and Texas, and the N. O., Jackson and Great Northern Rail Roads, and between Girod and Calliope streets—city property of course. The square occupied by the buildings of the N. O., J. & G. N. R. Road, completely blocks the drainage of a most *noisome* pond—not a pond now, but a compound of much dirty, dirty stagnant water, mixed with almost every conceivable character of filthy and offensive matters, deposited by corporation and private carts.

This space, or portion of Delta street, by consent of the city authorities has, for a long time, been used for a dumping ground—the object is to fill it. The filling has not been made with street scrapings, but with every kind of garbage, offal, manure; in fact with every species of decomposing animal and vegetable matters. The villainous odors, the malarial and poisonous gas eliminations, the intolerable, sickly, disgusting stenches arising from the locality, renders it nothing more nor less than a cess-pool, from which a malignant type of disease may, at any time, spring."

This nuisance, as well as all others, on batture properties, owned by either the city or citizens, complained of in previous

reports, appeal particularly for municipal legislation, which will result in its early abatement. Under existing ordinances legal opinion is adverse to the proposition that municipal corporations are equally responsible for violation of health laws as individuals. If such is the law, I fail to see its equity and justice, and from that stand-point have been arrayed every individual opposition and excuse for non-compliance to the notices issued from this office, and, likewise, those issued by the Board of Health. Ponds, the waters of which are impregnated and contaminated with every refuse imaginable—lots covered with ordure offal; fresh oyster shells; contents of night-carts; the unsaleable portions of stock of a certain class of dealers in produce, groceries, &c., such as adddled eggs, dead fowls, rancid bacon, spoiled pork, *uninviting* cabbage, &c., &c., render that portion of the river front, which was an attractive and inviting resort to visitors, now a loathsome and forbidding eye-sore.

COAL OIL ACCIDENTS.

1. An accident occurred at the residence of R. H. Tarr, corner of Franklin and Terpsichore streets, on April 21st, 1873. The oil used was purchased from J. P. Cross, No.—Camp street, and called Septoline, said to be non-explosive. Mr. Tarr was filling the lamp, with a lighted candle sitting near, when the oil ignited, but did not explode. Mr. Tarr was slightly burned—no other damage to speak of.

2. An accident occured July 19th, 1873, at the corner of Melpomene and Clara streets. No personal injury resulted. Furniture and bedding to the amount of $30 00 were destroyed. The oil was purchased fron J. Mook, corner of Melpomene and Magnolia streets, who obtained it from the wholesale dealer, A. Kowalski, 203 Tchoupitoulas street. It was sold for Coal oil.

3. December 6th, 1873, an accident resulted from using the Septoline oil purchased from J. H. Scott, Commerce street, near Julia street. No person met with injury; but furniture to the amount of about $100 00 was damaged.

4. At 233 Poydras street, in back yard of Moriaity's grocery, an accident resulted from carelessness, or ignorance, of a boy whilst emptying the contents of one can into another with a lighted candle near by. This was during mouth of December—

exact date not given. Boy is considerably burned. No other damage.

5. Another slight accident occurred on Erato, near Franklin street. No damage resulted and no report made.

In conclusion of this report I beg the privilege of offering a few remarks on the subject of the

QUARANTINE.

It is an expensive, non-supporting concern; it is an obstacle of a serious character to the commerce of this city and State; it is not just in its exactions, for the season when it imposes its embargo upon shipping—Rio Janeiro and other South American ports are included—when we are in the midst of summer they are enjoying the carnivals of the winter. It drives shipping from our port, and this diverts millions of dollars during the few months of its enforcement to the treasuries of other cities and States. It does not prevent the introduction of yellow fever; it has proved abortive in its purposes as a preventive of epidemics of yellow fever, or the introduction of small-pox or cholera, and for these reasons I would recommend a radical change in a law which, though made and yet in operation for good objects and good motives, and yet so barren in good results. Let the Forts Jackson and St. Philip be the quarantine station; the Government medical offices there on duty can, at a trifling expense to the vessels, and subjecting them to little delay, direct the process of disinfection and fumigation, give a health bill, etc., as it is not a source of revenue to the Board of Health, the city nor the State, in any particular. Let this law be repealed; this ruinous system of quarantine be modified and establish another under Federal auspices, if possible—if not, then let it be under city direction and control.

I would be doing gross injustice to my own sense of right were I to remain silent respecting the police officers Wooddy, Moore and Parker, who were detailed on duty at this office. Their intelligence of and familiarity with all the details of sanitary work, their uniform courtesy towards all with whom, in their official capacity, they were brought in contact, and the promptitude and correctness with which all their duties were

discharged evokes my opinion, that they are meritorious and deserving officers. Their assistance in the various details of the sanitary duties has been invaluable, not only to me, but to every citizen of this district.

HOUSE TO HOUSE INSPECTION.

Number of premises	10,817
" " with hydrants	1,369
" " with cisterns	6,598
" " " " and hydrants	2,654
" " " no water supply	196
" " built of wood	7,250
" " " iron	8
" " " brick	3,559
" " with 1133 horses, 1389 mules, 153 cows, 74 hogs	2,749
" lots vacant	644
" persons occupying premises	51,142

MISCELLANEOUS.

Number of inspections made	21,022
" re-inspections	2,684
" nuisances requiring abatement	2,919
" notices to empty vaults	2,335
" " rebuild vaults	86
" " repair vaults	72
" " disinfect vaults	13
" " clean premises	90
" " fill lots	50
" " drain lots	20
" " remove hogs	37
" " supply water	4
" " repair houses	14
" " raise and drain alleys	4
" dangerous buildings reported	4
" premises disinfected	512
" " fumigated	369
" cases of smallpox	245
" " choleraic disease	76

Number cases of yellow fever	23
" parties reported for non-compliance	18
" choleraic diseases	76

BIRTHS FOR 1872.

Whites	1044
Colored	320
Total	1,364

E. S. DREW, M. D.,
Sanitary Inspector, First District.

REPORT OF THE SANITARY INSPECTOR, SECOND DISTRICT.

J. S. CLARK, M. D.

OFFICE SANITARY INSPECTOR, SECOND DISTRICT,
New Orleans, La., Dec. 31st, 1873.

C. B. WHITE, M. D., *President Board of Health:*

SIR:—I herewith submit my annual report of the sanitary condition of the district during the year.

The Second Sanitary District comprises the Fourth, Fifth and Sixth Wards, or in other words, that area included within the boundaries of Canal and Esplanade streets, the Mississippi and Lake Pontchartrain, aggregating a population, excluding the sparsely settled portions beyond Broad street, of 39,096 distributed as follows:

	White	Colored	Total
Fourth Ward	8,216	2,813	11,029
Fifth Ward	12,371	4,689	17,060
Sixth Ward	8,081	2,926	11,007
	28,688	10,428	39,096

It is the oldest portion of this city, in fact the original town, and, subsequently, the First Municipality.

It is peopled almost wholly by those of foreign birth or extraction—native, Creole and foreigner.

There is probably no locality of equal limited extent, on this continent, where so large a number of different nationalities, chiefly of the Latin race, and at the same time a less number of the Anglo-American are congregated.

This, of course, assures a Babel of languages with different habits, customs and interests, which in no way served to lessen sanitary oversight. Its whole front is devoted to commerce, and its mercantile and merchandising business extends far back, while the Basin as a backdoor to the city received the commerce of internal waters and of the Gulf Coast.

Thus it may be readily seen, that this district might be a depot for imported infection and a good domestic nursery for all diseases incident to the miscellaneous aggregations of the poor, the transient and the vicious.

Besides this portion of the city was built at a time when less was known of hygienic relations to sanitary efforts in dealing with public and private matters, and thus less care was exercised in filling and draining of lots and grading of streets.

These are the peculiar conditions of this portion of the city.

SANITARY POLICE.

The experience of each year adds to the efficiency of the corps, and to-day they are not surpassed by any organization of like purpose. The opposition at first encountered has become changed to positive approval. The frequency of their visits and their unusual consideration and friendly advice to the poorer people, has resulted in almost every instance, in assuring them a pleasant welcome, and with the evil disposed, who are few if judged by their conduct in these matters, the authority conveyed by a Metropolitan uniform is decidedly wholesome.

The regular, and re-inspections which immediately follow, and the special and cursory inspections continued throughout the year, together with their visits in cases of small-pox, yellow fever, cholera, and other contagious and infectious diseases, and to premises wherein occur deaths that might have been in-

cidental to local sanitary causes, render the countenance of the Sanitary Police familiar to every household.

It is, therefore, of the first importance that a class of men be detailed who will command the good opinion of the community, and that changes in this body be as infrequent as possible.

The following is their work:

INSPECTIONS.

The house to house inspections by the Sanitary Police, commencing in January and terminating in July, is a careful inspection of every residence, business house, vacant lot, etc. It includes all areas less the public streets, which are subject to other jurisdiction.

HOUSE TO HOUSE INSPECTION.

No. of premises	8,556
" " with hydrants	2,277
" " " cisterns	4,310
" " " " and hydrants	1,738
" " no water supply	231
" " built of wood	6,179
" " " iron	5
" " " brick	2,372
" " with horses, 465; mules, 307; cows, 84; hogs, 22	878
" lots vacant	385
" persons occupying premises: White, 29,729; colored, 10,555	40,282
" children born in 1872: White, 688; colored, 322	1,010

MISCELLANEOUS.

No. of inspections made	15,946
" re-inspections	4,314
" nuisances requiring abatement	838
" notices to empty vaults	2,184
" " rebuild vaults	45
" " repair vaults	174
" " disinfect vaults	1,385
" " clean premises	150

No. of notices to fill lots		23
" "	drain lots	4
" "	remove hogs	12
" "	supply water	14
" "	repair houses	14
" "	raise and drain alleys	16
"	dangerous buildings reported	
"	premises disinfected	219
"	" fumigated	179
"	cases of small-pox	196
"	" yellow fever	38
"	parties reported for non-compliance	40

STREETS.

The absence of pavement on so many streets, is prolific of ills, other than those of business consideration.

Both the knowledge, derived from every-day observation and the chemical analysis of street fillings, give the assurance that they contain all the elements of animal and vegetable fermentation, which being well supplemented with the necessary and natural conditions of heat and moisture, give an idea of what may be expected from such an emitting surface. For looks, use, health and ultimate economy, the square block-stone pavement is unequalled for us.

It appears that a general street cleaning should occur in the Spring, and during the Summer the necessary removals should be made at night, thus avoiding the heat of the season in one case and the heat of the day in the other.

PUBLIC MARKETS.

There has been a marked improvement in the care and condition of the markets, in the matter of cleanliness during the past year, for, while it has been impossible to keep a constant supervision over them, frequent visitation has found them satisfactorily kept and complaints have been few.

The fish markets have, in years hitherto, been a source of great complaints by those living and doing business in their vicinity, but during this year they have been carefully washed;

yet those markets should be built so as to communicate with the river.

The batture in front of the French markets is too frequently used to deposit the refuse of the same, and this is of difficult prevention until a wharfboat is located in the vicinity. There is no dumping ground or wharfboat within a mile of this point, and no locality furnishes more offal.

SMALL-POX.

This disease has exhisted during the entire year, yet has secured fewer victims than might have been expected, and, no doubt, had the proper steps have been taken in the way of a general vaccination, and in the provision of a suitable asylum for the care and treatment of the poor, who, for humane considerations, were suffered to remain where found sick; no doubt but that the number would have been smaller and the risk of a general epidemic lessened.

Both the dictates of true economy and humanity should incite those in authority to secure every protective measure against contagious diseases, for the amount paid annually to private hospitals and for coroners' fees, would spare many valuable lives to a city in stress for popular accession.

All cases of infectious and contagious disease, whether among the rich or poor, should be amenable to authority, either at their own residences or at some institution provided by the City, where vigilant restraints and scrupulous sanitary care could be exercised.

It is to be hoped that the day is not far distant when ample authority will be conferred.

VACCINATION.

The usual practice of vaccinating those in the family and immediate vicinity, where occur cases of disease, has been followed and no doubt has limited the number of victims.

The requirements of Sect. 29 of Sanitary ordinances, with reference to vaccination in the Public Schools, having been heretofore faithfully performed, it remained only necessary to apply it to those arriving at scholastic age, or applying for the first time for admission, which has been done.

On inquiring I failed to learn of any Public School pupils having had small-pox during the past two years, and I presume that not a half a dozen have suffered from this disease, while their number is ten per cent. of the whole population.

YELLOW FEVER.

While in the dark as to the etiology or *causa causans* of this disease, we may yet be of service in collecting the immediate history of all cases and the origin of first cases, and especially, where efforts more or less successful, have been made to arrest its progress and secure immunity to the many.

As the facts attending the management of yellow fever for the past four years, have like common results, which apparently proceed from like antecedents, it becomes of value to know what they may have been. These results are, or seem to be, that this disease has been limited, restrained, lessened or modified, if not eradicated, by means instituted by and carried out under the auspices of your honorable body—not in one instance, or during one season, but in numberless instances, and for two, three and four years.

Presumptively on the theory, that the indefinite "secret agency," the "peculiar something," which is responsible for the existence of yellow fever, whether it be germ or poison, is more or less controllable by other "agencies" or "somethings," if known, it was ordained that the best disinfectant should be pitted against this great enemy of southern latitude.

Tabular Statement of Yellow Fever, as occurring in Second District during 1873.

Number.	Date of Attack.	Time in City. Month.	Time in City. Days.	Age.	DISINFECTION. Date of	No. of Premises.	No. Alleys.	No. Streets	Am't P'ts.	Am't Bbls	Pop'lation in area of one square Unacclimated.	Total.	Cases in this area. Previous.	Subsequent	Total.	LOCATION. Square.	Street.	REMARKS.
1	July 15	..	7		July 16	..	..	..	12	..	....	....	..	..	..	.....	U. S. Engineer's wharf	From dredge boat Essayons. Taken sick in Third District.
2	Sept 8	..	5		Sept 13	1	1	..	4	..	6	63	..	..	1	225	St. Ann.	Came to French Asylum sick.
3	Sept 13	..	2	33	Sept 16	1	1	..	4	..	13	60	..	..	1	4	Bienville and Peters..	Came from steamboat B. L. Hodge. Hodge had previous cases.
4	Sept 15	36	..	35	Oct 5	1	1	..	4	..	6	31				2	Corner of . ..	Former was not reported, nor premises
5	Oct 6	18	..	22	Oct 5 & 6	2	2	..	6	..							Conti and Peters. ..	disinf'd till day previous attack of latter.
6	Sept 14	..	10	22	Sep 17, 19	9	4	4	10	6	30	120	..	..	1	153	Liberty and St. Louis	Was a peddler among the shipping. Had just returned from a two months' absence in St. Louis.
7	Sept 17	..	5	24	Sep 17, 19	3	3	8	5	12	20	91	..	..	1	161	77 Marais	
8	Sept 22	..	8	29	Sep 27, 30	3	4	4	6	4	22	113	..	..	1	27	St. Louis n. Chartres ..	Came here from Shreveport sick. Arrived from St. Louis Oct. 3, left 8th, and returned 10th, sick.
9	Oct 9	..	2	21	Oct 12	1	1	..	4	..							Jefferson & Old Levee	Transient boardinghouse.
10	Oct 26	1	14		Oct 30	2	2	..	4	..							25 Toulouse.....	do. do.
11	Oct 28	20	..		Oct 30	1	2	..	6	..							11 Toulouse	do. do.
12	Oct 28	..	11	21	Nov 2	1	1	..	2	..	97	295			8	26	Jefferson & Old Levee	do. do.
13	Oct 29	..	14	35	Oct 30	1	1	..	4	..							do. do.	do. do.
14	Oct 31	..	11	21	Nov 2	1	1	..	2	..							do. do.	do. do.
15	Nov 14	1	..	33	Nov 16	1	1	..	4	..							15 Jefferson	do. do.
16	Nov 19	..	6		Nov 20	2	1	..	4	..							do.	do. do.

Tabular Statement of Yellow Fever, as occurring in Second District during 1873—*Continued.*

Number.	Date of Attack.	Time in City. Months.	Days.	Age.	DISINFECTION. Date of	No. of Premises.	No. Alleys.	No. Streets.	Am't. P'ts.	Bbls	Pop'lation in area of one square. Unacclimated.	Total.	Cases in this area. Previous.	Subsequent	Total.	LOCATION. Square.	Streets.	REMARKS.
17	Oct 15	3	..		Oct 30	1	1	..	2	..							16 Jefferson	Transient boardinghouse.
18	Oct 30	18	..		Oct 30	1	1	..	2	..							do.	do. do.
19	Oct 26	1	..	24	Oct 30	2	1	..	4	..	39	125			5	25	Jefferson & Old Levee	do. do.
20	Oct 27	12	..		Oct 30	2	1	..	4	..							do. do.	do. do.
21	Nov 19	1	15		Nov 20	1	1	..	2	..							16 Jefferson	do. do.
22	Oct 1	6	..	24	Oct 3 & 4	4	4	..	7	..	20	111				72	96 St. Peter.....	
23	Oct 12	48	..	23	Oct 12, 13 & 14	6	3	..	12	..								
24	Oct 3	6	..		Oct 8	4	4	..	12		16	95			1	89	143 Dauphine.....	Crowded tenement.
25	Sept 24	..	20	23	Sep 27, 30	3	3	..	4									
26	Sept 29	..	5	19	Sept 30	3	3	6	4	8	52	183			4	17	337 Old Levee	Sailor boardinghouse.
27	Sept 29	36	..	28	Sept 30	1	1	4	2								335 Old Levee	Sailor boardinghouse.
28	Nov 14	2		23	Nov 20	1	1	4	2								337 Old Levee	
29	Sept 28	..	4	35	Oct 3 & 4	4	4	..	10		39	120			1	93	163 Customhouse.....	Came here sick from Br. s. s. Cordovia.
30	Oct 1	22	..	25	Sept 29 Oct 3	2	2	..	6		14	63			1	129	221 Customhouse.....	Came here sick from Galveston, Texas.
31	Sept 27	84	..	38	Oct 4 & 5	3	3	2	12	1	22	75			1	272	377 Conti.	Taken sick on Ouachita Belle, Fourth District.
32	Oct 1	36	..	25	Oct 3 & 6	4	4	2	12	2	136	465			1	21	247 Old Levee	

Tabular Statement of Yellow Fever, as occurring in the Second District during 1873—Continued.

Number.	Date of Attack.	Time in City. Months.	Time in City. Days.	Age.	DISINFECTION. Date of.	DISINFECTION. No. of Premises.	DISINFECTION. No Alleys.	DISINFECTION. No. Streets.	DISINFECTION. Am't. Pn'ts	DISINFECTION. Am't. Rbls.	Populati'n in area of one square. Unacclimated.	Populati'n in area of one square. Total.	Cases in this area. Previous.	Cases in this area. Subsequent	Cases in this area. Total.	LOCATION. Square.	LOCATION. Streets.	REMARKS.
33	Oct 5	..	14	19	Oct 7	1	1	..	4	..	32	135				245	13 Prieur	Came here sick—vagrant.
34	Oct 29	..	28		Nov 4	6	3	..	8	..							373 Canal	
35	Oct 16	72	..		Oct 20	2	1	..	6		9	49				284	Miro and Dumaine...	Peddler among shipping.
36	Oct 31	5	..	24	Nov 2	1	1	..	4		25	140				300	367 Conti	Came from Plaquemine sick.
37	Oct 19	12	..		Oct 22	2	2	..	4		6	38				307	461 Conti.....	

NOTE 1.—Cases Nos. 1, 2, 3, 4, 5, 6, 7, 8, 24, 29, 30, 31, 32, 33, 34, 35, 36 and 37 occurred in sixteen squares and in seventeen distinct premises; yet after disinfection of either premises or streets, no subsequent cases occurred.

NOTE 2.—Cases Nos. 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20 and 21, in two different squares and six premises, seemed foci of infection. They were sailor boardinghouses, and mostly all reported from Charity Hospital some days after attack. Disinfection in these cases was at a late day, add not generally undertaken.

NOTE 3.—Cases Nos. 22 and 23. The latter was nurse to former. Next room to these cases was a family of French, just arrived, who used disinfectants daily and escaped the fever.

NOTE 4.—Cases Nos. 25, 26 and 27 occurred before disinfection.

NOTE 5.—Case No. 28 occurred after disinfection of premises and streets. Was a steward in large sailor boardinghouse, and might have been subject to other infection.

It will be seen by an analysis of the above table, that with two exceptions, where disinfection of the premises, wherein occurred a case of fever, and the streets environing the square, was practised (and in no case was disinfection carried to the extent required, as I conceive it necessary to repeat it, at near intervals, during the remainder of the season, if not at the beginning of the next) no subsequent case occurred.

It is not impossible, if indeed it be improbable that in one of these cases (No. 28) the locality might be innocent of infection, it being at a sailor's boarding-house and in the person of a dissolute being who spent his nights in vicious places.

Of the other (case No. 23) it should be said, that it occurred the day subsequent to disinfection of the house; the yards and streets having been disinfected nine days previously, but owing to the sickness of a former case it was not possible to disinfect the house until, after death, removal or recovery.

It will also be borne in mind, that this one was during this time the nurse of the former and his nephew and companion.

If it should occur as even intimated, that our whole duty had not been performed in the premises I would urge in extenuation, that the rigid economy that so characterizes our municipal management, stood in the way of the necessary expenditures for material (and for the little used, payment has been refused) and for the supposed greater necessity for its use in a locality, where this disease had already gained a foothold.

There are other facts, incidental to the above, worthy of designation, viz:

Of these thirty-eight cases none occurred among children and in but one instance, native born; their time in city being from one day to seven years; eighteen being less than a month, and the average time of the thirty-seven being but thirteen months, and only three could be considered as acclimated in having a residence previous to the general epidemic of 1867—thus showing the greater susceptibility of those undergoing a complete revolution in climate, diet, drink and domestic habits.

IN GENERAL.

We aver, that the greatest obstacle to a more satisfactory and complete sanitary fulfillment rests in those to whom we

are accustomed to look for co-operation and encouragement, viz: The press and the profession. It is an undeniable truth that, while the profession at large are giving their time and talent in the investigation of sanitary science and diffusion of sanitary truths, those in our midst are, not only not giving their assistance to the most vital wants of the community, but rather to their discredit they are too frequently positive weights to be borne. In all matters of hygienic and sanitary importance, State medicine, the physician should be the tutor and the people the pupil, and any dereliction on the part of the former is secure in untoward results in the latter.

When has one effort of your honorable body secured the co-operation of a baker's dozen of this liberal profession? Wherein has one enlightened and humane plan for the prevention or arrest of disease and death been seconded by them, the responsibility of whose calling and nobility of whose mission is second to none in the affairs of time? Exceptions are no less honorable than plentiful.

No! the tongue has been silent or used in derision and the faithful official has, too often encountered a faithless and obstinate mistress, with protestations fresh from the lips of their oracle.

Nevertheless the people are being daily converted to a belief in the efficacy of disinfection in certain diseases, which when contrasted with the criminal indolence of those, who by education and experience should point the way, but who have not character enough to act for the general welfare, stands in pleasant relief.

The people of this year of our Lord are scarcely satisfied with the alleviation of the physical ills of mortality, but demand all possible escape from these incidents and no priesthood can long retain its hold among them, with illusions of professional prestige for their only capital.

We believe it a truth, if not yet axiomatic, that health and its good reputation is, or is not, enjoyed by communities as they themselves elect, and that municipal authorities, especially, are at fault if a city is invaded by epidemic diseases of the zymotic class. And when we consider how much of preventable disease is included in our mortuary reports, we wish the truth

might be heard in its majesty. Reflecting that the death rate of seventeen per thousand is the standard in towns of the completest sanitary requirence wherein occur no preventable diseases, we have a text eloquent of possibilities, and were we to multiply this by two and discover the product our own death rate, exclusive of epidemics, we appreciate our political short comings.

I have the honor to be,

Very obedient servant,

J. S. CLARK, M. D.,

Sanitary Inspector.

REPORT OF SANITARY INSPECTOR, THIRD DISTRICT.

J. T. NEWMAN, M. D.

OFFICE SANITARY INSPECTOR THIRD DISTRICT,
New Orleans, Dec. 31st, 1873.

C. B. WHITE, M. D., *President Board of Health :*

SIR—The following report of my services as Sanitary Inspector for the Third District since the 15th April, 1873, includes that of my predecessor, Dr. Wm. H. Hire, from Jan. 1st, 1873, constituting my *annual report*, which I have the honor to present herewith.

The prevailing diseases of this district for the past year consisted of small-pox, cholera, congestive, remittent, intermittent and yellow fevers. The most persistent and destructive has been and continues to be that of small-pox.

SMALL-POX.

The power which the Board of Health is clothed with is totally inadequate to control and suppress the march of such a disease as small-pox.

It is a fact beyond all doubt or successful contradiction that

the masses are violently opposed to a general and public system of vaccination.

Hence, any sanitarian can readily perceive that in the absence of this safeguard, small-pox once having been introdued, is liable to become epidemic at almost any time; and nothing but special legislation upon this snbject will save us from this loathsome disease.

It will be seen in our tabulated report that very few persons have availed themselves of the protection afforded by means of vaccination.

I have in every instance where it was possible sent to the hospital all cases of this malady that have come under my observation.

I have oftentimes found myself greatly distressed when some very peculiar cases of this disease required my official action.

I will hereby produce an example, for instance: We will say a child of two years old, or more, is attacked with this disease, it is scarcely human to send such to the hospital, that is, the kind ot hospital we have now.

There is another class of persons who claim to be in such circumstances as enables them to furnish their medical attendance and at the same time provide for their own necessities. And they demand the right to enjoy the privilege that a sick person is entitled to under his own roof.

In such cases it is almost impossible for the sanitary inspector to persuade or force them to the hospital.

The reason for this obstinacy is self-evident on the part of the people, and from the stand-point from which they view it, it is both proper and just, "self-preservation being the first law of nature."

They have heard of the uncomfortable quarters assigned to the small-pox patients. They have also heard rumors of alleged ill treatment—hence their repugnance to be sent from their homes.

But if the city had a proper, comfortable and commodious hospital, it is my firm belief that they would embrace the opportunity with pleasure, feeling confident of receiving every attention, with a certainty of being under the treatment of skilled physicians and competent nurses, and that everything

would be done with a tendency toward their recovery, at the same time avoiding a possibility of propagating infection.

I earnestly recommend that the proper authorities be solicited to take such early action as will secure such a building and location as will fully answer the oft required and much needed institution.. It is the only feasible measure I can see that will silence the public clamor and at the same time be a benefit to the public health.

FEVERS.

Congestive, Remittent and Intermittent.

These fevers prevailed during the months of June, July, August, and up to the first week in September.

The mortality from these causes was double that of the entire mortality of the five remaining municipal districts.

The cause of the great mortuary increase was attributable to the existence at that time of a *protection levee*, surrounding a portion of this district, which retained the "rain-fall" in a circumscribed area covered with profuse vegetable growth, which, in this semi-tropical climate, is readily decomposed.

For years past it has been observed by the oldest and best informed resident physicians of this District that with the wind blowing in a northeasterly direction across the swamps from the lake, these fevers were more abundant in that locality bounded by Lafayette avenue, Enghien, Ferdinand and Port streets.

Having called the attention of the Board of Health to the then existing fact, I suggested that by cutting this levee and establishing self-acting sluice gates at proper intervals the drainage would be facilitated, and the probable cause of the disease removed.

In accordance with this recommendation the Board of Health memorialized the City Council in regard to the cutting of the above mentioned levee.

After due consultation, the City Council authorized the Administrator of Improvements to take immediate action and the necessary measures.

He promptly ordered the cutting of the levee in several places.

The effect, sanitarily speaking, of the drainage of such a large surface covered with water and decomposing vegetable matter was truly wonderful. Coincident with the drainage the lowering of the atmospheric temperature, peculiar to the autumnal season, has had the effect of almost totally causing the disappearance of this class of fevers.

I am of opinion that the cutting of this levee was the cause to which must be attributed the above satisfactory results.

YELLOW FEVER.

My first official information of the presence of this fever in the city of New Orleans for 1873 was obtained from the attending physician, who reported a case at No. 483 Chartres street, off the Spanish bark Valparaiso, which vessel was quarantined on her entrance to this port from Havana, June 24, 1873. After a detention of three days, and undergoing the usual process of disinfection, she was permitted to come to the city.

On the 4th day of July, 1873, Jose Maria Arua, first mate of the Spanish bark Valparaiso, was taken sick; but previous to his illness he was known to have indulged in a very extensive debauch; that was followed by prostration, black vomit, and death on the 8th of July, 1873.

I proceeded at once to disinfect the premises and yards of one-half of the block with zinc iron and refined and crude carbolic acid.

By reference to my tabulated report it will be seen that this is the only case of yellow fever that occurred in that block up to the date of this report.

As soon as a case was reported to this office immediate disinfection of the yards and premises was made.

But in the event of a case being under treatment no disinfection of the bed chamber was made until convalesence or death ensued.

In the majority of cases coming under our observation after disinfecting the premises and yards, and seeing that the patient was convalescing or removed, we at once proceeded to use the steam atomizer, charged with carbolic acid, and the spray so directed that it could not fail but reach every crevice in the apartment.

My sanitary officers were intrusted with the charge of seeing that every vestige of clothing worn by the patient was promptly destroyed by fire.

The wearing apparel of all occupants of infected houses was ordered to be immersed in boiling water.

The result of a faithful carrying out of these instructions, and a very liberal use of the re-agents ordered by the Board of Health have had, in my opinion, a most salutary effect in the suppression of this scourge.

It will be seen by looking over the table accompanying this report that yellow fever prevailed to a great extent among the shipping.

The forecastles and holds of infected ships were treated in the same manner as infected houses; but fresh cases occurred on the same ships even after the process of disinfection.

The daily re-occurrence of cases on the same vessel after disinfection suggested to my mind the existence in that vicinity of concealed, latent, retained and infectious germs. Believing the batture to be their hiding place, I commenced to disinfect it in the vicinity of the bark Putman, lying at Post 24, and to my great satisfaction there was not another case of the disease on that vessel, or at that post.

The result being so favorable, I at once ordered the disinfection of the whole batture of this district, from Esplanade street to Independence street, and was happily rewarded by finding a total cessation of the malady—not a single case having occurred in this district since the adoption of these measures.

I was greatly assisted in the prosecution of the above work by the prompt and most efficient co-operation of Col. James Lewis, the Administrator of Improvements.

Tabular Arrangement of Yellow Fever Cases in Third District New Orleans.

No. of Square.	Attack. Order of.	Attack. Date of.	City. Time in Years.	City. Time in Months.	Age.	Disinfection. Date.	Disinfection. No Premises.	Disinfection. No of Streets.	Quantity. Pints.	Quantity. Barrels.	Population in area of one square. Unacclimated.	Population in area of one square. Total,	Cases in this area. Previous.	Cases in this area. Subsequent.	Cases in this area. Total.
149	1	July 4			20 yrs.	July 8	Whole block.	Portion of four streets.	12		20	111			1
10	2	Sept. 1			29 "	Sept. 1			4		23	140			1
13	3	" 2	4		29 "	5 and 6			3		19	131		One.	2
8	4	" 2		11	25 "	7 and 8			4		50	170			1
257	5	" 5			27 "	9 and 11			4		13	95			1
12	6	" 6			39 "	9 and 10			3		15	108		One.	2
13	7	" 4	4		28 "	9 and 11			4		19	131	One.		2
11	8	" 12		21 days	5½ "	16 & 17			3		3	99			1
12	9	" 14		21 days	20 "	19 & 20			6		15	108	One.		2
162	10	" 17	3		28 "	23 & 24			3		12	78			1
6	11	" 27	2			29			3		57	183			1
3	12	" 28		15 days	21 "	Oct. 2			3		65	195		One.	2
147	13	" 29		15 days	19 "	" 3			4		5	98			1
164	14	Oct. 8		10 days	23 "	" 11			3		17	130			1
511	15	" 9			30 "	" 13			3		3	87			1
739	16	" 17			22 "	" 24			3		13	50			1
350	17	" 23	1		21 "	" 24			3		63	130		One.	2
3	18	" 26		21 days	16 "	27 & 28			6		65	195	One.		2
350	19	" 27	1			" 30			4		63	130	One.		2
19	20	Nov. 1	3		17 "	Nov. 5			3		7	73			1
No. Post.						**CASES AMONG THE SHIPPING.**									
27	1	Sept. 18	Prairie Bird.			Sept. 22			4		9				1
23	2	" 19	Armstrong.			" 19			3		10			5	6
"	3	" 20	Hampton Court.			" 22			6		7			3	4
"	4	" 20	"	"		" 22					7		1	2	4
"	5	Oct. 11	"	"		Oct. 12			3		7		2	1	4
"	6	" 11	"	"		" 12					7		3		4
29	7	" 11	Emma.			" 16			4		4				1
23	8	" 12	Armstrong.			" 12			7		10		1	7	6
"	9	" 12	"			" 12					10		2	3	6
"	10	" 14	Crescent City.			" 14			6		8			2	3
"	11	" 20	Armstrong.			" 20			6		10		3	2	6
"	12	" 23	"			" 23			6		10		4	1	6
"	13	" 23	"			" 23					10		5		6
"	14	" 23	Crescent City.			" 23			6		8		1	1	3
"	15	" 27	"	"		" 30			4		8		2		3
28	16	" 29	Endymion.			Nov. 2			7		10				1

Neither of the above cases were over three weeks in the city.

Disinfected the levee and batture November 2d. Since disinfection no new cases occurred in this district, although there remained 39 unacclimated persons on board of the vessels attacked, and other vessels arrived and were moored on the same wharves.

DISINFECTION OF STREETS AND BLOCKS.

I will here recapitulate as regards disinfection of streets and blocks:

There were twenty-two (22) blocks disinfected, wherein had occurred cases of yellow fever. These blocks were disinfected by hand, two barrels of zinc iron having been used in the process; also, six barrels of crude carbolic acid, and 143 pints refined carbolic acid; And in the general disinfection of streets we used 125 barrels more of crude carbolic acid, in the order as per Table No. 1:

Crude Carbolic Acid. Amount used.	1873. Date of Month.	DATES OF DISINFECTION OF STREETS WITH CRUDE CARBOLIC ACID.
24 barrels.	Sept. 15	Poet street, from St. Charles to Rampart.
		Peters street, from Esplanade to Ferdinand.
		Victory street, from Esplanade to Ferdinand.
		Chartres street, from Elysian Fields to Ferdinand.
		Elysian Fields street, from Peters to Royal.
		Marigny street, from Peters to Royal.
		Mandeville street, from Peters to Royal.
		Spain street, from Peters to Royal.
6 barrels.	Sept. 19	Frenchmen street, from Peters to St. Claude.
		Elysian Fields street, from Peters to St. Claude.
		Marigny street, from Royal to St. Claude.
		Mandeville street, from Royal to St. Claude.
		Spain street, from Royal to St. Claude.
12 barrels.	Sept. 22	Peters street, from Esplanade to Clouet, and same streets as before mentioned.
12 barrels.	" 25	Royal street, from Frenchmen to Poet.
		Dauphine street, from Elysian Fields to Poet.
		Burgundy street, from Elysian Fields to Poet.
		Rampart street, from Elysian Fields to Poet.
18 barrels.	Oct. 8	Lafayette Avenue, from Peters to St. Claude streets.
12 "		Port street, from Peters to St. Claude.
		Ferdinand street, from Peters to St. Claude.
		Royal street, from Poet to Montegut.
		Chartres street, from Poet to Montegut.
		Elysian Fields street, from Peters to Chartres.
		Also, the district west of Elysian Fields street.
24 barrels.	Oct. 20	Dauphine street, from Elysian Fields to Poet.
		Royal street, from Elysian Fields to Frenchmen.
		Villere street, from Elysian Fields to Frenchmen.
		The Levee and Batture, from Esplanade to Clouet sts.
17 barrels.	28 & 29	The Levee and Batture, from Clouet to Congress sts.

CHOLERA AND CHOLERA INFANTUM.

But very few cases of cholera have occurred in this district during the past year.

Whenever a case was reported to this office the premises of such place were immediately disinfected. The privy vaults with sulphate of copper and zinc iron; the premises, including the chamber (in the absence, of course, of the patient) with pure carbolic acid. The clothes worn by the patient, including the bed clothing, to be subjected to a process of disinfection, viz: Immersion in boiling water strongly impregnated with pure carbolic acid.

After such measures having been taken we have had, with but one exception, a single case of re-occurrence—that occurring in an isolated spot on the Gentilly Road.

Touching the subject of cholera infantum, I would remark that the mortality among infants was very large in this district.

After a thorough flushing of the gutters, I noticed a decided decrease of infantile mortality which led me to believe that the same agent that produced congestive, and billious intermittent fevers, had much to do with the disease now under consideration.

SUB-SOIL WATER,

As observed in a well at No. 82 Port street, 3d District. This well is located at the residence of officer J. Schott, who is entrusted with the charge of making the within mentioned observations.—(Vide maps of sub-soil water.)

Notes of rise and fall of water were taken every morning between the hours of seven and eight o'clock, A. M., and under no circumstances was water put in or taken from this well.

On the 8th day of January, 1873, the water in the river was as its lowest stage—while the water in this well was five inches (5) below the surface of the ground.

On the 4th day of June, 1873, the water in the river was at its highest stage, while that in the well was only nine and one half inches (9½) below the surface of the ground. Showing most conclusively that the rise and fall of the water of the Mississippi River does not control the sub-soil water as heretofore supposed—but is entirely dependent for its rise and fall

upon the amount of rain-fall in this geographical area, to-wit:—the "Mississippi Basin."

N. B—The above mentioned well is located about 1500 feet from the river bank.

FILLING OF LOTS.

We have had very little trouble in compelling people (owners) to fill up their lots.

During the past winter this district was visited by several disastrous conflagations destroying many blocks of houses.

This property being to a great extent insured, enabled the owners to re-build, and at the same time fill their lots according to ordinance of the Board of Health.

In concluding this Report, I earnestly recommend the establishing of public water closets and urinals in suitable localities on the river front.

If such a measure was carried out, the batture along the river would present a more agreeable appearance, and certainly improve its sanitary condition.

HOUSE TO HOUSE INSPECTION.

House to house inspection was commenced the 16th April, 1873—it necessarily progressed slowly, having but *one* officer.

During the month of May my force being increased to three men, the work was more rapidly prosecuted.

The rainy season impeded our progress very considerably. The inspection was completed during the month of August, 1873.

HOUSE TO HOUSE INSPECTION.

No. of premises			7,278
"	"	with hydrants	323
"	"	with cisterns	5,800
"	"	with cisterns and hydrants	1,097
"	"	with no water supply	58
"	"	built of wood	6,334
"	"	built of iron	none.
"	"	built of brick	944
"	"	with horses, 366, mules, 351; cows, 112; hogs, 129—total animals	958

No. of lots vacant	536
" persons occupying premises	38,675
" rooms to premises	25,089
" " used as kitchens	6,101
" " " stores	515
" vacant houses	103
" children born in 1872: White, 528; colored, 245	773

MISCELLANEOUS.

No. of inspections made	9,696
" re-inspections	1,280
" nuisances requiring abatement	2,263
" notices to empty vaults	1,582
" " rebuild vaults	74
" " repair vaults	136
" " disinfect vaults	148
" " clean premises	152
" " fill lots	11
" " drain lots	20
" " remove hogs	101
" " supply water	38
" " repair houses	none.
" " raise and drain alleys	1
" dangerous buildings reported	none.
" premises disinfected	202
" premises fumigated	235
" cases of small-pox	200
" cases of yellow fever	36
" parties reported for non-compliance	1
" Vaccination	151
" Children, 120; Adults, 31. Total	151

REMARKS. There are estimated about 2,000 people beyond Broad street, Canal and Poland streets, not accounted for in this table.

It affords me pleasure to recommend to the favorable notice of the Board, officers "Schott" and "Kohlhause" for their indefatigable perseverance in the prosecution of their arduous duties during the past year.

Your very obedient servant,

J. T. NEWMAN, M. D.
NEW ORLEANS, LA.

REPORT OF SANITARY INSPECTOR, FOURTH DISTRICT.

A. W. PERRY, M. D.

OFFICE SANITARY INSPECTOR, FOURTH DISTICT,
New Orleans, December 31st, 1873.

C. B. WHITE, M. D., *President Board of Health:*

SIR—I have the honor to submit the following summary report of this department and of the sanitary condition of the Fourth District for the year 1873.

The year 1873 has been exceedingly unhealthy, and this part of the city, though suffering less than other districts, has had a far greater amount of sickness and deaths than last year. There have prevailed to a moderate extent small-pox, cholera and yellow fever.

SMALL-POX.

The small-pox began in January, with seven cases, slowly increased until April, and ceased at the end of June. During this period there were eighty-nine cases of small-pox and varioloid. Most of the cases of small-pox were sent to the City Hospital.

Free vaccination was offered to the public, and during the first four months of the year I vaccinated 271 persons. The public schools were visited, and the vaccination of the pupils examined and certificates given to those who presented well marked recent scars.

Certificates were given to 1810 children. In the examination of the school children I found a number who had had small-pox or varioloid after vaccination. The arms of these children showed a smooth, shining, elevated scar, like the cicatrix of a burn and not like the true vaccine scar. This kind of scar is not protective against small-pox.

CHOLERA.

The cholera commenced in this district in April and continued until June, there being twenty-five cases.

This disease did not observe its usual course; the cases were widely separated, having no discoverable connection, and in situations frequently, which were in fair sanitary condition; and in only one house was there more thau one case. All premises where the disease occurred were fumigated with sulphurous acid and sprinkled with a solution of pure carbolic acid in the rooms and passages. The adjacent yards were also sprinkled with crude carbolic acid.

YELLOW FEVER.

The yellow fever commenced in this city July 4th. The first case, J. M. Arrua, was the mate of the Spanish bark Valparaiso, which left Havana in ballast June 16th and arrived at the Quarantine Station below the city June 24th; after a detention of two days the vessel arrived at the city and was moored at Post 48, at the foot of Second street; the man died July 8th. The case was not reported to the Board of Health until the 8th.

On July 12th the mate of a steamboat, which was laid up for repairs at the same wharf, about 30 yards distant, was taken sick with yellow fever and was reported July 16th. On July 18th the vessel was, by order of the Board of Health, towed about two miles up the river and anchored oft the foot of Napoleon Avenue, about 100 yards from the shore. On July 17th and 18th the wharf at which the vessels lay was sprinkled with crude carbolic acid.

From these two cases the disease slowly spread, there being

In July	6	cases,
In August	25	"
In September	54	"
In October	32	"
In November	6	"

Of the first ten cases, eight had recent direct communication with the first two cases, or had visited the vessels above mentioned. During the first week in August I commenced exten-

sive disinfection with carbolic acid of all places where yellow fever was reported.

The disinfection was performed in two ways. All the alleys, yards and empty lots in any square where a case was reported were sprinkled with crude carbolic acid by means of hand sprinkling pots, using about 70 gallons of crude carbolic acid per square; in some instances the half or quarter of the square in which the disease was situated was disinfected.

The contiguous streets were disinfected with carbolic acid, applied by sprinkling carts, at the rate of about 15 gallons per 100 yards length of street. The object was to surround the disease and to prevent its extending to other houses in the same square, or to other squares; and this has practically been effected, as will be seen by the table below.

When the general disinfection began in the first week in August, the disease was irregularly scattered over the area bounded by Felicity, Toledano, the Levee and Chippewa sts.

Of 25 cases in August, 23 were in this area.

Of 54 cases in September, 41 were in this area.

Of 32 cases in October, 18 were in this area.

Of 6 cases in November, 3 were in this area.

The disease spread very slowly. This is unusual in yellow fever, where the rate has been observed to be about 40 feet per day. This rate of progression would have extended it over more than three-quarters of the whole district up to the time when the first frost was observed this year.

The table given below shows the number of cases, the relation and disinfection, and the number of persons liable to the fever in the same squares where cases occurred.

The census was taken by an intelligent sanitary policeman, and the "liable" population consists only of those whites who have come to the city and children born since 1867, the last general epidemic yellow fever year in this city. This estimate makes the number liable smaller than it really is, by the number of whites who came here before 1867, but who have hitherto escaped yellow fever.

No. of cases of yellow fever.....	123
No. of squares in which yellow fever occurred.....	59

No. of entire squares disinfected	20
No. of entire squares disinfected, with subsequent cases of yellow fever occurring	5
No. of entire squares disinfected, and no subsequent cases of yellow fever occurring	15
No. of half squares disinfected and no subsequent cases	20
No. of half squares disinfected with subsequent cases	5
No. of quarter squares disinfected and no subsequent cases	7
Total population in fifty-nine squares	6846
Total liable population in fifty-nine squares	1744

By examining the above table it will be seen that fifty-two areas were disinfected with carbolic acid, and that in ten of these areas there were cases afterwards, and these will be accounted for as follows; but some of these failures are not real and the others are partial, not total.

In square 107 there is a convent in which five persons were taken sick consecutively; but these persons were in the habit of visiting the sick in the infected portion of the district, and it is much more likely that they contracted the disease out of their residence than in it.

A few cases were reported after October 30th, the first frost, but these cases were not disinfected and are not counted as successes.

In square 29, which was not disinfected at all, with a liable population of 39 and a total population of 48, there were cases August 13-28; September 2-11-22.

In square 46, with a liable population of 30, and a total of 301, there were cases August 13-19-28; September 10-11. The entire square was disinfected September 14, and there have been no cases since that time.

The weather was favorable to the spread of yellow fever during the whole season up to the 19th of October, when the thermometric mean went down to 70° F., and remained between 60° and 70° until October 30th.

HOUSE-TO-HOUSE INSPECTION.

The general house-to-house inspections were commenced in January and finished in July. During three months of this

time I had the services of three extra sanitary police; during August, September and October, I had the services of two extra men, who, with the regular detail of one man, did an immense amount of disinfection. During the year, 1261 separate premises and lots were disinfected by sprinkling with carbolic acid; about 250 were premises adjacent to cholera cases, and the remainder were in the vicinity of yellow fever cases; 360 lineal squares of streets were disinfected during the season.

These disinfection operations consumed 279 barrels crude carbolic acid.

SUB-SOIL WATER.

Daily observation on the sub-soil water have been made throughout the year. In the well in which the observations were made there has been a range of 4 feet 7 inches in the level of the water. As during last year the rise and fall of the sub-soil water was found to be entirely caused by rains and spells of dry weather, and to have no relation to the height of the Mississippi River.

HOUSE TO HOUSE INSPECTION.

No. of Premises	6,945
" " with hydrants	none.
" " " cisterns	6,924
" " " " and hydrants	none.
" " no water supply	21
" " built of wood	6,341
" " " iron	none.
" " " brick	604
" " with horses, 395; mules, 911; cows, 233; hogs, 26	1,565
" lots vacant	339
" persons occupying premises	29,910
" rooms to premises	28,675

MISCELLANEOUS.

No. of inspections made	7,449
" re-inspections	1,853
" nuisances requiring abatement	2,231

No. of notices to empty vaults	1,279
" " rebuild vaults	109
" " repair vaults	18
" " disinfect vaults	21
" " clean premises	53
No. of notices to fill lots	2
" " drain lots	29
" " remove hogs	19
" " supply water	none.
" " repair houses	2
" " raise and drain alleys	13
" dangerous buildings reported	none.
" premises disinfected	1,261
" " fumigated	111
" cases of small-pox	89
" " yellow fever	123
" parties reported for non-compliance	28

REMARKS.—White children born in 1872, 610; colored children born in 1872, 247; houses vacant, 170; white, 25,733; colored, 4177.

Yours respectfully,

ALFRED W. PERRY, M. D.,

Sanitary Inspector, Fourth District.

REPORT OF SANITARY INSPECTOR, FIFTH DISTRICT.

H. H. BANCROFT, Sanitary Officer.

SANITARY INSPECTOR'S OFFICE, FIFTH DISTRICT,
New Orleans, Dec. 31st, 1873.

C. B. WHITE, M. D., *President Board of Health :*

SIR—I have the honor to submit the following annual report of the operations of this office, and the sanitary condition of the Fifth District, for the year 1873:

This district includes that portion of the parish of Orleans and Jefferson, situated on the right bank of the Mississippi River, and extending from the upper line of Jefferson to the lower line of Orleans parish—a line upon the right bank of about thirty miles.

The following table exhibits the result of the annual general inspection :

HOUSE TO HOUSE INSPECTION.

Number of premises inspected		2,454
" vacant lots		913
" houses built of brick		24
" " " wood		1,517
" premises with cisterns		1,536
" premises with no water supply		5
Total number of inhabitants		6,806
" of white inhabitants		4,607
" of colored inhabitants		2,199
Number of white children born in 1872	162	
" colored children born in 1872	100	
Total number of children born in 1872		262
Water capacity of cisterns—gallons		1,841,700
Number of rooms		3,852
Average water capacity for each room—gallons		475
" number of inhabitants to each house		4.41
" " " " room		1.7

GENERAL SANITARY WORK.

Number of	inspections made	5,406
"	re-inspections made	2,352
"	nuisances found requiring abatement	287
"	notices served to empty privy vaults	164
"	" " rebuild privy vaults	2
"	" " disinfect privy vaults	114
"	" " fill lots	1
"	" " provide water supply	5
"	" " repair houses	1
"	premises disinfected	296
"	premises fumigated	91
"	cases of small-pox	63
"	cases of yellow fever	34
"	cases of cholera	6

SMALL-POX.

There were sixty-three cases of small-pox reported in this district (Algiers) during the year 1873, and in every case the premises were thoroughly disinfected and fumigated.

Most of the cases were sent immediately to the small-pox hospital, but where the case was isolated it was allowed to remain in the locality where it occurred. The colored people suffered most from this disease, probably in a ratio of two to one.

YELLOW FEVER.

The yellow fever first made its appearance in this district on the 14th day of August, in the person of Simeon Murray, a steamboat mate. At the time he was taken sick he was working on the Belle Lee, lying at the wharf of this city, from which boat some yellow fever cases had previously been sent to the hospital.

The premises where he resided, with the adjoining yards, was thoroughly disinfected with pure carbolic acid, and no other cases occurred in the neighborhood thus treated.

No other case occurred until the 30th day of August, at which date Mr. and Mrs. Alfred N. Carpenter were taken sick.

These cases could be traced to no cause whatever, and seemed to be entirely sporadic; but from this time the fever began to spread, and reached its highest point on the 16th of September, 1873.

The whole number of cases during the year was thirty-four. There was a rumor of two or three cases having occurred on plantations down the coast, but no definite reports were received.

SUMMARY OF DISINFECTION.

Thirty-four cases of yellow fever occurred in eighteen different premises.

The total number of premises disinfected was 296.

Of the eighteen yellow fever premises disinfected, on thirteen no subsequent cases occurred.

Cases in same house, where disinfection could not be practiced, by reason of sickness, two—Mr. Mackey and Mrs. Johnson.

Number of cases where the floor only was disinfected, one—that of a child of Mrs. H. W. Green. This was one of the first cases reported, and though the surrounding yards were disinfected, the inside of the house was not properly disinfected. There were two subsequent cases in this house.

The streets were disinfected several times during the prevalence of yellow fever, and the fever did not cross the line of the first disinfection.

The following table gives a succinct history of the disease in this district.

Tabular Arrangement of Yellow Fever Cases in Fifth District.

No. of Square.	Attack.		Time in City.		Age.	Disinfection.			Quantity.		Population in Area of One Square.		Cases in this Area.			Died.	Recovered.
	Order of.	Date of.	Months.	Days.		Date.	Premises.	Streets. Lineal Sq'rs.	Pints.	Barrels.	Unacclimated.	Total.	Previous.	Subsequent.	Total.		
8	1	Aug. 14	24	9	40 yrs.	Aug. 15	4	2	4	¼	15	87			1	died	
80	2	" 30	18	6	32 "	" 31	6	3	6	¼	23	96		4	5	died	
80	3	" 30	12	0	27 "	" 31	6	3	6		23	96	1	3	5		rec.
41	4	" 30	18	6	28 "	" 31	6	3	6	½	40	116		3	4	died	
41	5	" 30	48	6	4 "	" 31	6	3	6		40	116	1	2	4	died	
77	6	Sept. 3	36	0	3 "	Sept. 4	4	1	2	¼	22	51		2	3	died	
81	7	" 4	18	6	28 "	" 4	5	2	3	⅛	10	35			1	died	
96	8	" 8	42	0	3½ "	" 9	5	2	3	⅛	30	94			1	died	
17	9	" 8	72	9	6 "	" 9	5	4	6	½	19	82		5	6	died	
17	10	" 10	96	10	39 "	" 10	5	4	6	½	19	82	1	4	6	died	
79	11	" 10	37	0	25 "	" 10	5	2	3	⅛	22	66		5	6		rec.
41	12	" 10	60	4	5 "	" 11	5	2	3	⅛	40	116	2	1	4	died	
78	13	" 10	48	5	27 "	" 11	5	2	3	⅛	30	96	2		1		rec.
17	14	" 12	36	6	15 "	" 12	5	4	6	½	19	82	3	3	6	died	
41	15	" 12	12	6	29 "	" 12	40	4	4	¾	40	116			4	died	
43	16	" 12	2	9	25 "	" 13	4	2	3	⅛	10	30			1	died	
17	17	" 14	60	0	5 "	" 14	5	2	6	¼	19	82	3	2	6		rec.
79	18	" 16	48	6	32 "	" 16	10	4	6		22	66	1	4	6		rec.
79	19	" 16	48	6	28 "	" 16	10	4	6	1	22	66	2	3	6		rec.
79	20	" 16	36	0	3 "	" 16	10	4	6		22	66	3	2	6		rec.
79	21	" 16	48	0	4 "	" 16	10	4	6		22	66	4	1	6	died	
80	22	" 16	18	6	28 "	" 17	10	4	6	1	23	96	2	2	5		rec.
80	23	" 16	18	6	24 "	" 17	10	4	6		23	96	3	1	5		rec.
80	24	" 17	72	0	28 "	" 17	10	4	6		23	96	4		5	died	
114	25	" 17	60	0	23 "	" 17	10	4	6	1	17	42		1	2		rec.
114	26	" 17	48	0	23 "	" 17	10	4	6		17	42	1		2		rec.
77	27	" 18	96	6	35 "	" 18	10	2	4	½	22	51	1	1	3		rec.
77	28	" 18	72	9	29 "	" 18	10	2	4	½	22	51	2		3		rec.
25	29	" 22	60	0	5 "	" 23	4	2	4	½	18	70		1	2	died	
25	30	" 24	60	7	10 "	" 24	4	2	4	½	18	70	1		2		rec.
17	31	" 24	48	0	29 "	" 24	20	4	6	½	19	82	4	1	6		rec.
17	32	" 24	2	0	25 "	" 24	20	4	6	½	19	82	5		6		rec.
83	33	" 25	6	5	45 "	" 25	5	2	4	¼	20	98			1	died	
79	34	Oct. 5	50	6	12 "	Oct. 5	4	4	6	1	22	66	5		6	died	

CHOLERA.

There were but six cases of cholera reported during the year, and as in the cases of yellow fever, the premises were thoroughly disinfected with pure carbolic acid, and no other cases occurred in the locality thus treated.

THE MARKETS.

The private markets in Algiers and Gretna, are generally kept in good order. This is particularly the case with the public market in Algiers.

ILLUMINATING OILS.

No arrangement exists for lighting this part of the City (Algiers) with gas. Coal and other oils are resorted to for illuminating purposes, yet I am happy to say that but one accident has occurred, either in Algiers or Gretna, during the year. This, I believe, is to be attributed to the strenuous efforts made by former Sanitary Inspectors of the Board of Health to diffuse information among the people, and to secure the sale of better oils.

THE SUB-SOIL WATER.

Daily observations have been made of the water in the two wells in this district, during the year. One is two hundred feet, and the other one thousand feet, from the bank of the river.

Whilst the river has varied twelve feet five inches, the well nearest the river has varied but four feet and one inch.

The well most distant from the river has varied two feet and five inches.

The river reached its highest point on July 5th, being then one foot and seven inches above the water in the well nearest the river, and ten feet four inches above the level of the water in the well most distant from the river.

The river reached the lowest point on the 8th of January, and was then nine feet and nine inches below the water in the well nearest to the river, and four feet three inches below the water in the well most distant from the river.

These facts show conclusively that the rise and fall of the water in the ground is not dependent on that of the water in the river.

Very respectfully,

H. H. BANCROFT,

Of Sanitary Police.

REPORT OF SANITARY INSPECTOR, SIXTH DISTRICT.

GEORGE KELLOGG, M. D.

C. B. WHITE, M. D., *President New Orleans Board of Health.*

SIR—The following summary of sanitary affairs in the Sixth District is respectfully submitted. Heretofore, the Sixth District has presented no especial salient points that would elicit a very elaborate report from the Sanitary Inspector, but the eruption of yellow fever of an aggravated type, in the month of August, and its apparent suppression in September, by disinfection, renders the history for 1873 somewhat interesting.

Annexed you will find tabulated statistics of the rise, progress and decline of this disease; also, an analysis of the most interesting features contained in it.

The general house-to-house inspection was not commenced until April, as Officer Beauman was detailed for duty in the Fourth District, and the persistent rains during May and June interfered materially with his work, but the number of inspections made will compare favorably with previous years, as will be seen by the following table:

HOUSE TO HOUSE INSPECTION.

Number of Premises	2,426
" " with cisterns	2,426
" " built of wood	2,385

Number of Premises built of brick	38
" " with 220 horses, 149 mules, 223 cows, 160 hogs	241
" " occupying (white)	8,653
" " " (colored)	3,178
" inspections made	2,426
" re-inspections	237
" notices to empty vaults	352
" " repair "	43
" " disinfect "	178
" " raise and drain alleys	7
" cases of small-pox	53
" " yellow fever	30
" " cholera sporadica	12

On the 27th day of August the first case of yellow fever was reported. This was in square 113, bounded by Milan, Marengo, Jersey and Tchoupitoulas streets. As to its history, it was very obscure. Whether it had any connection with the anchorage of the steamer Belle Lee at the foot of Milan street, would, of course, be only a matter of speculation, but at any rate it is suggestive, as notwithstanding every precaution of isolation was enforced, the fact exists that the fever originated and assumed a very malignant type, in its immediate vicinity.

The date of disinfection of this and other portions of this infected district, will be seen on reference to the accompanying table. Another focal point of dissemination was on square No. 248, bounded by Louisiana avenue, Camp, Magazine and Delachase streets. The first death, that of Capt. Greathouse, occurred on the 29th of August. The origin of this case is also obscure. The subject, had resided in New Orleans 34 years, but from the nature of his profession, he may have never been in the city during an epidemic season, and therefore is in the category of an unacclimated person. His premises were disinfected immediately subsequent to his death, but I did not deem it necessary to disinfect the adjacent houses, as it was thought to be a sporadic case. But subsequent results proved it to have been an error, for on the 3d of September, a non-malignant case occurred in an adjacent house—these premises

were disinfected—and on the 10th, another mild case occurring, the square was partially sprinkled with carbolic acid. There were no further manifestation of disease until the 27th, when a fatal case occurring, the whole square was saturated with the disinfectant, and no subsequent case developed in that vicinity. Again, a third square became a point of attack, viz: 103, bounded by Chippewa, Delachaise, Tchoupitoulas streets and Louisiana avenue. The first and only case died September 4th. The square was immediately disinfected and no other case occurred subsequently.

The question of the availability of disinfectants, persistingly and thoroughly carried out to arrest yellow fever, has been tested during the past year, and the aggregation of facts speak for themselves. An isolated case does not substantiate a position, it may be simply a coincidence, but a series of results, all analogous, must be admitted as good evidence. An analysis of the accompanying table, which shows the rise, progress and apparent extinction of yellow fever, with the dates of disinfection, which may be compared with the development of the disease in square 113 and the eight adjoining ones, and its perfect circumscription within definite lines, is certainly strong evidence that it was hemmed in by the agents used.

As to the malignancy of the disease, the fact that 69 per cent. of the cases within those nine squares proved fatal, is sufficient proof. The fever culminated, on the 15th, on which day all the streets surrounding and intersecting the nine squares, bounded by Milan, Austerlitz, Laurel and Water streets, were saturated with carbolic acid by sprinkling carts, and it will be observed, on reference to the table, that after that day, only three cases occurred on those infected squares. We can hardly suppose the sudden decadence of the disease was spontaneous, for the squares surrounding the above designated ones, were as populous as those infected, and the residents as amenable to the disease as those on opposite sides of the streets, for the fact obtains, that the disease did not cross Laurel, Milan or Austerlitz streets, and the only death outside of those squares and adjunct to them, was that of Mr. Gehl, who was removed from No. 113, and died on the corner of Tchoupitoulas and Napoleon Avenue. With this analysis of the accompanying table, we leave the subject.

Tabular Arrangement of Yellow Fever Cases in the Sixth District.

No. of Square.	Attack.		Time in City.		Age.	Disinfection.			Amount.		Population in Area of One Square.		Cases in This Area.		
	Order of.	Date of.	Years.	Months.		Date.	No. of Premises.	No. of Streets.	Pints.	Barrels.	Unacclimated.	Total.	Previous.	Subsequent.	Total.
248	2	Aug. 25	34		44 yrs.	Aug. 30	1				21	67		3	4
113	1	" 27	20		31 "	" 27	1				14	73		5	6
94	3	Sept. 1	2		32 "	Sept. 1	1				22	56		1	2
103	4	" 2	3		30 "	" 2	2								1
248	5	" 3	8			" 7	3				21	67	1	2	4
89	6	" 4	4	6	4½ "	" 7	6				15	89			1
112	7	" 6	10		30 "	" 7	1				7	60		2	3
150	8	" 9	3		32 "	" 10	3				22	75		3	4
88	9	" 9	6		18 "	" 10	1				14	45			1
113	10	" 9	5		13 "	" 10	3				14	73	1	4	6
113	11	" 9	5		52 "	" 10	30				14	73	2	3	6
113	12	" 9	4			" 10	5				14	73	3	2	6
113	13	" 9		18		" 10	3				14	73	4	1	6
111	14	" 9	4			" 10	3				16	91		2	3
111	15	" 9				" 10	5				16	91	1	1	3
248	16	" 10				" 10	1				21	67	2	1	4
111	17	" 10	2		28 "	" 10	2				16	91	2		3
113	18	" 10	5		20 "	" 11	4				14	73	5		6
90	19	" 12	5		33 "	" 13	3				22	56	1		2
150	20	" 13	3			" 15	5				22	75	1	1	4
149	21	" 13				" 15	6				23	75			1
115	22	" 15	15		33 "	" 16	10				37	154			1
112	23	" 15	5		5 "	" 16	10				7	60	1	1	3
150	24	" 15	2		28 "	" 16	30				22	75	2	1	4
112	25	" 21	3		20 "	" 17	28				7	60	2		3
215	26	" 23				" 24	1								1
150	27	" 27	2		28 "	" 28	6				22	75	3		4
248	28	" 27	7		7 "	" 28	1				21	67	3		4

PUBLIC SCHOOL BUILDINGS.

An inspection of those premises shows them to be with two or three exceptions in a bad sanitary condition. The privy vaults are either leaking badly or overflowed, and in several instances the surface ground is saturated with the offensive debris. In one of the yards is a large pond of water and in another a dangerous well, very much exposed, and should be looked after. In fact, they are not adapted to the purposes for which they are used.

DRAINAGE.

The drainage of the Sixth District is very defective, especially so above Napoleon Avenue. There are about twenty squares between Bordeaux street and Peters avenue marshy, all the time submerged, and are a deposit for dead animals, and are occasionally very offensive. Drainage is, of course, the only practicable remedy for this nuisance, and the only feasible plan that suggests itself to my mind, is large culverts under the Carrollton Railroad, with a ditch on the swamp side of the road, and paralell to it, from Peters avenue to Upper Line street, through the latter to Claiborne Canal, a distance of about thirteen squares.

VACHERIES.

Several of these nuisances have been voluntarily abated by the owners removing farther from St. Charles avenue, but there is a lack of power in the Board of Health to remove them. Although liable to a penalty for non-abatement of a reported nuisance, they, by some means, evade the ordinance, and defy the sanitary officer. More stringent legislation is necessary for a faithful enforcement of the ordinances already in existence.

GEO. KELLOGG, M. D.,
Sanitary Inspector, Sixth District.

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